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Thirty-Minute Talks

— Stewart-Waldron

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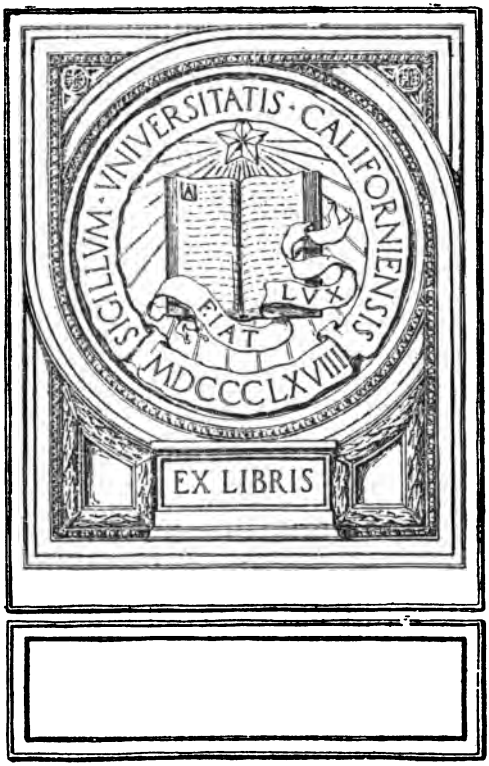

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THIRTY-MINUTE TALKS

BY

MAJOR M. B. STEWART

AND

MAJOR W. H. WALDRON

United States Army

WASHINGTON, D. C.
UNITED STATES INFANTRY ASSOCIATION
1920

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FOREWORD

Explaining is half of the work of instructing. Talk saves work—when it is the right kind of talk. For the instructor, explaining—talking—is the hardest part because it means constant brushing up, reading, study, thought and planning—all of which takes time, and time counts heavily in the game of intensive training.

The little talks which follow are offered as time-savers for the instructor. They are not in any sense treatises of the subjects considered—just plain, every-day talks which the man who is new to the atmosphere and surroundings of military life will be able to understand. They will save the time of the instructor by presenting to him a guide—an outline—which he may elaborate or rearrange as he may choose.

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ORGANIZATION

General Remarks.—Organization in any walk of life is nothing more than the arranging of men and materials after a proper fashion in order to do business in an orderly and efficient manner.

You live in an atmosphere of organized effort. Wherever you turn, you see examples of organization all about you every moment of your life, in everything you do and in everything that concerns you. Everything in life is organized after one fashion or another. As a matter of fact, civilization as we understand it would be impossible without organization.

In school, students are arranged in classes; hours for study and recitation are prescribed; rooms and instructors are provided; rules for attendance and conduct are laid down; everything is done to make the machinery of the school move smoothly, to prevent confusion and to enable the students to employ their time to the greatest possible advantage to themselves. In other words, the school of today is a highly organized industry whose purpose is to convert the untrained boys and girls of the land into educated and useful men and women.

Imagine what would be the result if no such careful arrangements were made for carrying on the work of the schools. Picture for yourselves the result if students and teachers flocked about at will, attending lectures and recitations as they chose, coming or going as they pleased. Education would become a matter of chance.

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Or take any business house or factory with which you are familiar. As you see it now, everything moves smoothly. Every day at a fixed hour, a whistle blows or a bell rings. Workmen assemble and file in to their places of work. The machinery begins to move. Loads of raw material, iron, wood, and the like go in at one entrance, pass through certain processes and through the hands of various workmen and go out of another entrance in a steady stream of useful and necessary articles. Everything has been arranged in advance. Each workman has a certain part to play in the game of production; each goes about his part without hesitation or confusion. There is no delay. Everyone knows just what to do and how to do it. Organization prevents hitch or confusion.

Now, fancy what would be the result without just this sort of organization—this careful planning and arrangement. Workmen would not know what was expected of them. They would come and go at their own will. If they worked at all, it would be nothing more than haphazard effort. All of them might attempt to do the same thing at the same time; each of them might decide to let the others do it; the result would be the same—no one would do anything.

One more example in your daily life: when you want food, you go to a grocery store and buy it. If you are ill, you go to a doctor for treatment. If you are in trouble, you seek a lawyer's advice and assistance. If you have a toothache, you go to a dentist, and so on down through the list of your possible wants and needs.

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You are able to do this because modern, civilized life has been so arranged—organized—that everyone today has a part to play in making life move smoothly for all of us. In other words, the whole world is working for you in one way or another and you are working for the whole world after some fashion.

Now, in military life, organization is the same thing and it has the same purpose. It is the arranging of men into groups of varying sizes suitable for military control and employment.

Military Organization.—You have seen briefly how important the subject of organization is in everything pertaining to life. In military life it is even more important, for the reason that it has to do principally with men—the most difficult beings on earth to control—under conditions which almost always make for excitement and confusion.

In military operations, large numbers of men must be moved and controlled and cared for in comparatively limited spaces, generally under conditions which tend to create disorder. Spaces are limited for the reason that military operations must take place along routes of travel, roads, railroads, rivers, etc. Armies cannot cut across country and move as they choose because each must trail behind it long trains of guns, supplies and materiél upon which it depends.

Moreover, large numbers of men, large quantities of artillery, large numbers of vehicles of every sort are invariably required near the scene of battle. Artillery must be in readiness to support the assaulting troops;

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food and ammunition for the fighting men must be at hand; hospitals and ambulances must be near to take the wounded to places of safety. All of these constitute a fringe which must border closely on the scene of the fight. Each must be near at hand so that it will be available at the moment it is needed in the fight. Space thus becomes a matter of the utmost importance and, unless men, guns, transportation and all can be so grouped that they may be held in compact bodies, and moved and controlled without confusion or hesitation, they cannot be brought together in the limited spaces which are available, but will be scattered so far that they will be of no use.

Again, any kind of a military engagement, however small, is invariably accompanied by possibilities of excitement and confusion. This is inevitable to any situation in which human life is put in peril. Even the best of veteran troops become nervous and subject to excitement when awaiting action or when under fire. As an example of this may be cited one of the finest shock divisions of the French army. This division was known throughout the allied armies for the fierceness of its fighting. It bears an unbroken record of success in battle, yet it became nervous and panicky when waiting under fire, a fact recognized by the French commanders, who invariably arranged to move this division to the front only in time to permit it to go almost immediately into battle. Such being the case, unless arrangements are made to hold troops under control at all times, they are apt to become disordered at the moment when they are most needed.

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Arrangements must be made to check small disorders and prevent them from becoming general. For example, one man may fall out of ranks and stray away without serious effect, but if his example be followed by a score, a hundred, or a thousand men, the result is the loss of that many men from the firing line—some hundreds of yards of the front left vacant—and a mob wandering about and getting in the way somewhere back in rear. For these reasons it is absolutely necessary in military life to arrange troops in convenient groups which permit of the strictest supervision and control from top to bottom at all times.

This necessity extends to every phase of the soldier's life and work. In barracks, in camp or billets, everywhere, large numbers of men must be kept together, must live in common quarters, under crowded conditions and, unless absolute order is maintained, great discomfort for all will result. A homely example of this necessity may be found in what the soldier calls "the chow line," the line which the men of an organization form preparatory to receiving their meals. This line, sometimes as much as two hundred and fifty men in length, forms, passes by serving stations, where each man receives a portion from each of the pots and boilers. Men stationed at these pots and boilers serve each man quickly, almost mechanically, and the whole line files past the serving station in a surprisingly short time. Now, fancy what it would be like if the same two hundred and fifty men should storm the serving station in a mob.

On the march, the necessity for strict control is

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again observed. As has been pointed out, armies must move along roads, and roads are not always plentiful. Those available must be used with the utmost care. Every inch of space must be used to the greatest possible advantage. Troops moving on these roads must do so in compact groups, taking up as little space as possible. All of these conditions, everything in fact connected with military operations, makes strict order and control imperative, and it is only through thorough, detailed organization that such control may be secured.

There is also another reason for organization in military life. Fighting is only one part of the work of an army. The army must be cared for—must care for itself largely. It must be supplied with food, clothing, ammunition, medical supplies. It must be paid. Its records must be kept. The thousand and one housekeeping details connected with the maintenance of a large number of men under unfavorable conditions must be provided for. Provision for this is what we call, in the army, administration, and our organization must be such as to make this administration as simple and easy as possible.

We thus have two conditions which must be met in planning our organization for the army, viz., first, our organization must lend itself to control—in camp, on the march and in battle; second, it must permit of simple and easy administration under the same conditions.

In our army the groupings are arranged, as you will presently see, to meet both of these conditions.

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Now you must understand in the beginning that organization is not and can never be a cut-and-dried affair, fixed upon once and settled for all subsequent time. As a matter of fact, it is ever changing in many of its details. It must frequently change to meet the requirements of armament. We have a certain weapon which is handled by a certain number of men. We invent a better and a slightly different weapon which must be handled in a slightly different way. Perhaps it needs more men or less men to handle it—the number of men is changed, and our organization has undergone a change. It may change with a change in equipment. It frequently changes with the type of warfare in which the troops are engaged. This was notably so in the late war. The conditions of trench warfare introduced new weapons, new methods, or rather variations of the old methods, of carrying on warfare. These changes in weapons and methods brought about changes in the grouping of men to meet the new conditions. It is not probable that any organization, however perfectly adapted to the conditions of today, will meet those of tomorrow as well. For this reason it will be useless for you to burden your minds with the details of organization in general. You will do well if you have in mind the general principles upon which organization is based, together with the details of the particular units with which you have to deal.

As we have said, organization must be such that its long arm reaches from the very top all the way down to the very last man in the military establishment.

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As a matter of fact, the importance of organization increases the farther it goes down the line, because the farther down it goes the more intimately it has to do with the conduct of men. The smaller units of organization are those with which you will have most to do for a long time, and for this reason, in this discussion, we will begin at the bottom and work up.

Now in every arm of the service there is, to begin with, a small grouping of men which constitutes the basis for building up the organization of the arm. In general, it is a group of such size that one man may effectively control its members at all times and supervise and direct their conduct and actions. This group is known by somewhat different names in the different arms of the service, but the infantry squad is typical of all of them in numbers and purpose.

The Squad.—The infantry squad consists of eight men, a noncommissioned officer, a corporal—known as the squad leader—and seven privates. It is the smallest group in the infantry organization and is the basis upon which the platoon and company are built.

Now, on the principle that if you are about to build a house, it is well to know all about bricks, it is well for you to have a very clear idea of the squad, its work, its life, the relationship of its members to each other, and the part it plays in the platoon and company.

The squad is the unit in which the private soldier lives, eats, sleeps, fights and has his being until promotion or disability removes him from its associations. It is the team in which he learns and plays the fighting

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game. Outside of it, the private soldier has few interests. The squad is the unit upon which all of the work of the platoon and the company depends. Unless the men of each squad work together as a single man, the work of the platoon becomes well-nigh impossible. Each squad must always be found in the same place in the platoon, doing the same thing time after time, in exactly the same way.

The Platoon.—The next step upward in organization is the platoon, a unit of organization to which too much importance cannot be easily attached. It is strictly a fighting unit, and it corresponds closely in strength and combat functions to the small pre-war company. It is the smallest unit of organization ordinarily assigned an independent part in combat.

It is normally composed of six squads, with noncommissioned officers and others who bring the total up to a strength of fifty-eight enlisted men. It is commanded normally by a lieutenant. The platoon is formed in six squads and for combat purposes is divided into two parts called sections. Each section is normally composed of three squads and is under the command of a sergeant who has a corporal as an assistant. The lieutenant commanding the platoon is known as the platoon leader, and he has, as an assistant, a platoon sergeant and a detachment of privates for duty as runners and signal men.

(NOTE.—At this point, the instructor should write the organization of the platoon in detail on a blackboard or other surface which the class may see.)

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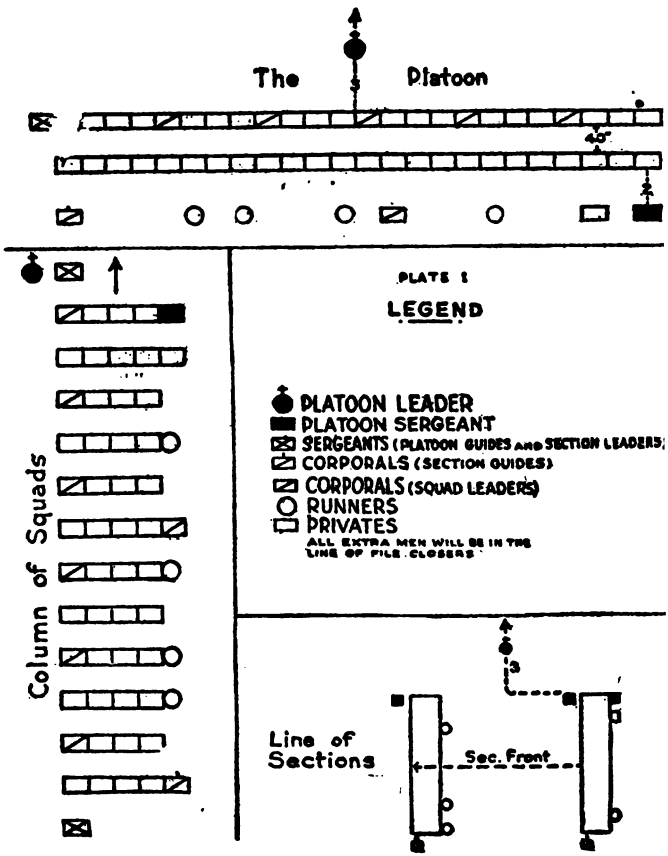

FIG. 1.—The Platoon

As we have pointed out, the platoon is a most im ant unit of organization. It trains as a unit and fi as a unit. On its proper training depends the succe the company to which it belongs. In fact, we ma further and say that on the training and fighting of platoon depends the success of the whole fighting fc

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This gives us a clue as to the care and attention which should be given to its training. The platoon is a team in which teamwork should be second nature, a team which must be so thoroughly trained that it works almost automatically. Such teamwork is not possible in the larger units of organization because much of it depends upon acquaintance among the members of the team, a condition not possible among a large number of men. In the platoon, each man, officer, noncommissioned officer or private, should know every other man, just as the members of a football or baseball team know each other. They should be acquainted with each other's qualifications and limitations well enough to know just how much they may expect of each other in a pinch. They must depend absolutely upon each other, and they must have confidence in each other before they can depend on each other—they must know each other before they will possess that confidence.

The education of the soldier is begun in the squad and is finished in the platoon. When the soldier has mastered his duties in the squad and understands the work of the platoon, when he knows what is expected ordinarily of the platoon and understands the way in which it goes about doing what is required of it—when, so to speak, he knows the various plays and the signals for them, he is a trained and efficient member of his organization.

The Company.—The next step upward is the company. It consists of four platoons and a detachment composed of certain noncommissioned officers, clerks,

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buglers, cooks, runners and signal men. The total strength of a company is two hundred and fifty men and six officers.

Strictly speaking, the company is not a combat, or fighting, unit, that is, it does not fight as a company. Any or all of its four platoons may engage in a fight, but each fights independently as a platoon. However, the company organization is not without a useful purpose in combat, for it serves as a link to hold the platoons together and make them mutually supporting. The platoons receive their orders from the company commander, who assigns them missions in the combat. They make their reports to him and apply to him for any assistance they may need in carrying out their missions. In a word, the company commander is the director of the platoons in combat.

The company organization serves another most important and useful purpose. Briefly, it is the administrative or housekeeping agency. As we have said, the platoons do the fighting, but that is all they do as platoons. However, they must eat, sleep, draw clothing and pay, and be provided with shelter, bathing facilities and medical attendance—must live, in other words—and somebody must attend to these administrative details, as they are called. The company organization provides for all of this. The company commander, with the assistance of the men in the headquarters detachment, looks out for all of these details, relieving platoon leaders from such responsibility.

The first sergeant and the company clerks attend

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to keeping the necessary records and to making proper requisition for necessary clothing and food. They attend to all details of quartering, guard and care of the troops. They prepare and forward all the information necessary to the settlement of the accounts of the men of the company.

The supply sergeant is charged with the duty of obtaining the necessary clothing, equipment and food for the company. The mess sergeant supervises the care and preparation of the food. The cooks prepare and serve the food.

The company may thus be likened to a large family, with four fighting members, the platoons, and a home-keeping member, the company headquarters.

The Battalion.—The next step up is the battalion. Here again we have a tactical or combat unit, that is to say, a unit of organization designed for and principally concerned with tactical operations—fighting and the operations leading up to fighting.

The battalion is composed of four companies of infantry and a small detachment attached to the headquarters of the battalion. It is commanded by an officer, usually with the rank of major, who has certain staff officers to assist him in carrying on the operations of the battalion. In principle, these operations are conducted along the lines described for the four platoons of a company. The battalion commander, having received a mission, assigns to the companies of his battalion such tasks as will, in his opinion, serve to carry out that mission successfully. Thereafter, like

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the company commander, he confines himself to the duty of directing the progress of the operation through orders given to the commanders of his four companies. He does not, except in the direst emergency, presume to take upon himself the responsibility for directing in detail how the operations shall be carried out. Only in the rarest of circumstances does he ever assume direct command over any portion of any company.

In addition to what has already been outlined, the battalion commander exercises an important influence over the combat. He has at his command certain agencies with which he can materially assist the companies in their respective tasks. These agencies are, generally, the whole or a part of a machine-gun company, a section of 37-mm. guns, sometimes a section of light mortars, and, at times a single piece of field artillery, known as an accompanying gun. Moreover, he normally holds out in every mission one or more of his companies as a reserve for use in emergency. With these forces at his disposal, he is able to give powerful assistance to the companies actually engaged and, by using these forces at the proper time and in the proper way, to give a favorable turn to the engagement and to reap the full results of what his assaulting troops have done.

For example: If one of his assaulting companies has been held up by some strong opposition, like a machine-gun nest or a strongly entrenched and occupied position or a collection of occupied farm buildings, by bringing his machine guns, his 37-mm. gun

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and, possibly, his mortars and accompanying gun to bear on the obstacle, he can clear the way to its capture by the company.

Or, after a successful assault by one or more of his companies, they may find themselves in such a state of disorganization and lack of control that they are unable to take advantage of their success. It is necessary that they pull themselves together—get in shape—before attempting any further advance. Then it is that the major may exercise his influence over the tide of affairs by sending forward one of the companies held in reserve to pass through—leapfrog—the disorganized company and continue the pursuit or assault.

The Regiment.—The next step is the regiment. The regiment is normally composed of three battalions and certain other units which play a part either in the combat or in connection with the administration of the regiment. These units are, a machine-gun company, a headquarters company, and a supply company. The regiment is commanded by a colonel.

The Machine-gun Company.—We have seen how machine guns may be used to assist the troops of a battalion in carrying out a mission. Machine-gun assistance is not always necessary to a battalion. In fact, in carrying out many of its missions, a machine-gun company, as a part of the battalion, would only be in the way. Again, it is not always possible to say just how much machine-gun assistance a battalion may need under given conditions. Sometimes it may need a whole company, sometimes more; sometimes

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it may need only a platoon. For these reasons machine guns are not incorporated in the battalion, but, in order to have them handy in reasonable numbers, a company of machine guns forms a part of every regiment, from which they are assigned to battalions of the regiment as they may be needed.

The Headquarters Company.—We have also seen how 37-mm. guns and trench mortars may be used to assist a battalion in carrying out a mission. Neither of these forms a part of the battalion organization. For the same reasons as those stated with reference to the machine guns, they are incorporated in the organization of the regiment, and each forms a section in the headquarters company of the regiment.

There are many occasions when simple engineering work, like bridge and road building, is necessary for some part of the troops of a regiment. Engineer troops are not always handy to do this work, and it is provided for in the organization of the regiment by a pioneer or engineering platoon which forms a part of the headquarters company.

We have seen that a housekeeping or administrative detachment is necessary in each company to look after the wants of the men of the company. In the company this is reduced to the barest necessities. In the regiment, however, all of this work is consolidated for all the companies and it must be attended to in all its many details. Here a large force of clerks are required to keep track of all details connected with the accounts and records of the thirty-seven hundred

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or more men of the regiment. Here, in the regiment, is the machinery that attends to all of the business affairs of all of the members of the regiment. This is provided for by a detachment of clerks and administrative assistants who form another section of the headquarters company.

The Band.—Finally, we have the regimental band, that very important agency in the life of every regiment, the agency upon which the spirit and morale of the regiment so often and so largely depends. The band forms still another section of the headquarters company.

The Supply Company.—You will have some difficulty in visualizing the many needs of a regiment in the way of clothing, food and equipment, as well as ammunition and other matériel needed in campaign. It may help you some to know that a regiment eats approximately 4,000 pounds of meat and as much bread each day, besides hundreds of bushels of vegetables and 8,000 to 10,000 quarts of coffee, All of this food, besides clothing, equipment, wood, oil and numberless other things, must be procured for the troops and must be delivered, figuratively, at their back doors. And it must be remembered that this is a constant, daily task. It can never fail. Lack of any of these things for a single day may turn the whole tide of a campaign. So it is that the man on the truck, or the man urging four weary mules through an ocean of mud, is often playing a part just as important as it is inconspicuous and arduous. That man is usually a member of the supply company of some regiment, and it is his never-

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ending job to go back to some pitch-dark railhead, load up with rations, clothing, equipment, ammunition, what-not and then make his way back over dark and often demolished roads to deliver his load to the troops at the front. The supply company is the procuring, transporting and issuing agency of the regiment, the agency upon which the regiment depends to live and fight.

Roughly, this completes the organization of the units of organization up to and to include the regiment. The many details of organization of all of the units are to be found in the Tables of Organization, revised and issued to the army from time to time. These details change to meet conditions, and, for this reason, it is perhaps just as well not to burden the memory with them. It is essential that all should have a clear idea of the units which go to make up the regiment and of the parts which each plays in the life and operations of the regiment. Each member should have an accurate knowledge of the organization of the unit in which he is concerned and he may content himself with a general knowledge of the rest.

The Brigade.—The brigade is composed of two regiments and a machine-gun battalion of four companies. It is commanded by a brigadier general, who is assisted by a small detachment of officers and men.

The Division.—The division is composed of two brigades of infantry, a brigade of three regiments of artillery, and a motorized machine-gun battalion of two companies. In addition to these combat units

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there are certain others, such as the Engineer Regiment, the Field Signal Battalion, the Supply Trains, the Sanitary Train, and a number of other services necessary in the life of the division. It is commanded by a major general.

The Corps.—The corps is composed of two or more, usually not to exceed four, divisions, together with certain additional units of artillery and supply. It is commanded properly by a lieutenant general, but, in many cases, is the command of a major general.

The Army.—The army is composed of two or more corps and a variety of special troops, such as special and heavy artillery, the air service, motor transport service, military police service, and such other services as may be needed from time to time.

SYNOPSIS OF TALK

Organization; General remarks; Comparisons; The school; The business house; Purpose of organization; Necessity for organization in the military service; In battle; On the march; In Camp; Organization not a cut-and-dried affair; The squad; The platoon; Its training; Its function; The company; Its function; Administrative; The battalion; The major's part in combat; The regiment; The machine-gun company; The headquarters company; 37-mm. section; Trench mortar section; Pioneer section; Clerk section; Band section; The supply company; Its function; The brigade; The division; The corps; The army.

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TRAINING

General Remarks.—As a first step toward becoming an instructor, you must have a clear conception of what training means—the purpose, the scope, the standard, the proportion, and how it all pieces together in the final product. You cannot expect to get all of this in one lecture, or in many lectures, but it is possible for you to form an idea of the outline or skeleton on which the subject of training must be built.

Much has been written on the subject of training. Much of it is of excellent quality, but much of it serves only to confuse the student—especially the beginner—because it deals with single phases of training, very frequently overstressing the importance of the phase under consideration and, in any event, leaving to the student the task of bridging the gaps between and of piecing together for himself a working doctrine of training. Lack of uniformity in doctrine, if nothing worse, is bound to result.

Again, in such discussions, theory is more than likely to crowd practice into the background. *The student is told what should be done, but not how to do it.* The main issue—getting practical results—is thus left to the initiative of the student, with one of two results, viz., he either gets no good results or no two students get the same results.

Now, as a matter of fact, it is impossible to write a definite formula for the making of the fighting man. Military training varies widely according to circum-

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stances, and the most that anyone can do for you is to give you certain principles which govern successful training and which may be applied to all phases of training. For this reason, you should understand the subject of training in a broad way before attempting to apply any of the principles to any phase of the work.

The Main Features.—The main features of military training are simple and easy, easy to understand, easy to carry out. In fact, there is nothing obscure or difficult in the entire scope of military training, nothing complicated, nothing any man should fail to grasp. Success in military training—teaching the trade of the fighting man—requires no special talents, nothing more than average intelligence, average energy, common sense and a liking for the work.

As a foundation for your work of training, you should have clearly in mind:

1. The object, character and scope of military training.

2. The principles underlying the control of men.

3. The principles upon which the art of instructing—teaching—is based.

The Object of Military Training.—In a nutshell, success in war is the sole object of all military training.

Whether it be apparent or not, the purpose, immediate or ultimate, of everything that the soldier is required to learn or to do is the winning of battles.

For example: Close order drill has but one purpose—to enable commanders to control and handle bodies of men with system and order in the theater of military

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operations. March training has but one purpose—to fit men for the task of moving from point to point in the theater of operations with the greatest possible speed and with the least possible fatigue. Musketry has but one purpose—to train the soldier to shoot straight, hit the enemy and remain under the control and direction of his commanders while doing it. And so on, down through the whole list of training, the object of each phase of training is to win battles. Anything and everything that contributes to this end, no matter how insignificant, is essential. Everything that does not contribute to this end, no matter how spectacular, is unessential.

For example: Teaching men to care for their feet and to brush their teeth seems unworthy of serious attention, yet both contribute to the health of the soldier and, in war, the health of the soldier is an all-important matter. On the other hand, fancy rifle drills are pretty and spectacular, but they have no place on the field of battle and they contribute little if anything to success in battle.

In this connection, for your own benefit, take the list of training phases given at the end of this talk and consider each one of them carefully, analyze it in a general way, try to visualize its effect on the man and on the organization, decide what part it plays in the whole scheme of training, and thus try to give it a definite place and value in your doctrine of training. Practice in this will save you from confusion in what you study by enabling you to estimate the value of

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what you are studying and its importance in your work. It will often save your time by keeping you from studying something of no importance in your work. Moreover, it may help you to keep from overestimating the importance of some phase of training and of thus becoming an enthusiast—a crank—on some one phase to the neglect of something of equal or greater importance.

For example: You will often hear it said that this or that company is the best shooting company in the battalion, or the best marching company in the regiment, or that such and such a company is very proud of its work in some other phase of training—all of which means that the officers of that company are probably cranks in that particular matter of training and that they have neglected the training of the company in some other equally important matter. All of the platoons of a company, the companies of a regiment, should be equally good in all of the essentials of training.

The Character of Military Training.—Military training is the process whereby the untrained civilian is transformed into a member of a thinking team which is capable of doing the things that result in winning battles. In other words, it is the process of converting untrained men into fighting men and of molding them into a machine that works smoothly in battle. Mankind is the commodity with which you must work, and your success will depend entirely upon the manner in which you handle this commodity.

The Human Element.—The human element plays a

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more important part in military training than in any other kind of training, for the reason that military training has to do with a purpose out of the ordinary and at variance with our accepted ideas of civilized conduct. In everything else we have to study we are taught that it is a crime to take human life. In this, we are taught how to take it scientifically and expeditiously. Furthermore, the ultimate purpose of all military training is directed to the employment of men under conditions where the emotions are in the raw and where the ordinary rules of conduct will be forgotten. For these reasons, training, if it is to be effective on the field of battle, must be in accordance with the fighting instinct of man, or, if not, it must be logical beyond the shadow of a doubt. In other words, under the stress of battle, men must be guided either by instinct or by habit. Training must follow the fighting instinct or must be such that it will result in an ingrained habit, else in the excitement of combat it will be discarded and forgotten.

All training must thus follow instinctive lines, and every phase of the transformation from the raw product should be effected with as little departure as possible from the man's natural habits and conduct. If in any case this be impossible, every effort should be made to make the transformation logical, something that will appeal so strongly to the man's reason that it will become second nature.

As a matter of fact, military training does follow natural and instinctive lines. Fighting principles have

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changed but little from the natural instinctive methods of the stone age. They have merely undergone refinement due to changes in armament and equipment—the tools with which men fight.

For example: the "encircling of machine-gun nests," of which we have heard so much in connection with the late war, is nothing more than a mild development of the flanking methods practiced by the American Indians two hundred years ago. The offensive grenade of 1919 is a variation of the Chinese stink-pot of centuries past. The trench mortar is the modern ballista.

It follows also that training must be simple, involve only natural movements, and it must be given the appearance of simplicity in its teaching.

Civilization has happily weaned men from the fighting habit. They still have the fighting instinct without the habit. They have to be trained to the habit of the fighting man, and they must be trained to the point where these habits are second nature. This degree of training can only be reached as the result of thoroughness—a thoroughness which is based on reason, which overlooks no detail, and which insists on perfect execution.

The character of military training may therefore be summed up in two words, simplicity and thoroughness.

Intensive Training.—All military training should be intensive. Any other form of training is a waste of time and energy.

Intensive training is the process of imparting the

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greatest possible amount of instruction in the shortest possible amount of time. In other words, it is the art of instructing without lost motion, a progressive, scientific and systematic transformation which makes every moment count to the utmost.

The principal thing to bear in mind in connection with intensive training is that the amount of training does not depend upon the amount of time consumed but upon the way in which the time is employed.

For example: The object of the training is to make a team which will work smoothly—teamwork. Let us consider one such team—the platoon, for instance—for a moment. If there is a practical method by which one man—the platoon leader, for example—is able to train the whole platoon in a certain thing, say physical drill, manual of arms, school of the soldier, etc., it is obviously a waste of time and effort to break the platoon up into squads, put the squads under the squad leaders for preliminary instruction, then finally assemble the platoon for the polishing off. What you are driving at is teamwork, and the instruction as a team cannot begin too soon. It should begin at once. That is the intensive idea.

Again, practically all military instruction is composed of about equal parts of explanation and practice. That being the case, when you explain, do so thoroughly in the beginning, once and for all. Make the subject understood. Don't explain partly, then make a failure and have to go back. If you do, you have lost the idea of simplicity and have introduced the idea that there is something difficult about the performance.

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The Scope of Military Training.—The scope of military training includes a great deal. It may stagger you at first glance. It probably will, and it surely will continue to stagger you unless you get it all properly labelled as to importance in your mind. The point is that not all of the phases of training are of equal importance. You must have clearly in mind what is of first importance and what is secondary.

Again, the scope of military training depends largely upon what it is intended to do with the men who are trained. It is important to understand this before beginning the work. By so doing, the mistake of wasting time in unessential effort will be avoided. The relative importance of the different parts of the soldier's training can only be measured by the standard of training required of the soldier, and this, in turn, depends entirely upon the use to which it is intended to put the soldier when his training is completed.

The standard of training required of the soldier generally results from the military experience of the nation. Depending upon their experience, they may expect much or little of the soldier.

For example: If a country has had no occasion to use its soldiers in war, it will be satisfied with the parade-ground kind of a soldier. If it has had occasion to employ its men in small, scattered detachments, the soldier must be capable of intelligent, independent action under a great variety of circumstances, hence should be a highly trained individual. On the other hand, if it expects to employ its soldiers in the large masses demanded by modern warfare, the re-

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quirements of the soldier in the way of training may be boiled down to the cool and energetic plugging of a hole in a widespread skirmish line.

However, there are certain basic elements of training which every soldier must possess without regard to the manner in which he may be employed. In the first place, whatever else may be his training, the soldier is of no value unless he can be depended upon to arrive at the scene of the fight when he is wanted, and in condition to take an active, effective part in the fight. This spells the first requirement of the soldier's training —*Physical Condition.*

In the second place, unless the soldier be able to shoot effectively when he arrives at the scene of the fight, he is of no value in deciding the tide of battle. This spells the second requirement of the soldier's training—*Marksmanship.*

Finally, given physical condition and marksmanship, the soldier is of little value on the field of battle—or anywhere else—unless his efforts can be properly controlled and directed. This spells the third requirement of the soldier's training—*Discipline.*

These are the prime essentials, without which the soldier is of little use. There are other important things in the soldier's training, but no one of them effects his efficiency to a like degree. These are the things he must be taught. Now, in summing up, the outstanding facts which you should have in mind are:

1. That military training is marked by simplicity and thoroughness.

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2. That it must follow instinctive lines or must be so logical that it is accepted without question and incorporated as a habit.

3. That it must have a definite purpose, thoroughly understood by both the instructor and the man under instruction.

4. That it must be carried out in the true intensive spirit, to make every moment full of intelligent interest, full of benefit to the man under instruction—no lost motion.

System in Training.—In due time you will undoubtedly hear a great deal about systems of training and programs and schedules of instruction. For the time being, it will not be necessary for you to burden your minds with the details of such subjects. The system under which you will be trained and under which you will assist in training others will be prescribed by the proper authority, and the programs and schedules of work will be prepared by those responsible for your training. So you may dismiss all of this from your minds for the time being and give your thought to methods of carrying out the details of training and instructing in accordance with prescribed programs.

There are, however, certain basic principles with reference to system in training which it would be well for you to have well in mind from the beginning.

In considering the subject of system in training, one important fact should always be borne in mind—training is not a product of either time or system alone, but of both time and system, in a formula in which

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time and system enter in inverse proportions. As system increases in efficiency, time decreases, and the reverse. Without a well-developed system, the element of time in training can be little more than mere speculation. In other words, we cannot assume that it takes this or that amount of time to train a man or a body of troops to any particular standard of efficiency until we know the system under which they are to be trained. It follows, of course, that we cannot fix upon a system of training until we have a well-defined idea of the standard of proficiency which we desire, and this in turn cannot be fixed upon until we have decided upon the essentials of the soldier's individual and collective education—all of which resolves itself into a sort of ring-around-the-rosy until we decide upon some of the factors in the problem.

Logically, of course, the solution of the problem should begin with a definite idea of what we want the soldier to do, both as an individual and as a member of his unit, followed by a definite idea of how well we expect him to do the things expected of him. These two factors are the foundation stones of our system.

For example: Let us assume that we decide upon the Marksman's Qualification as the proper standard of individual proficiency in shooting. By experiment, we can then easily develop a system of instruction by which to train the average individual to the required standard. To a certain extent this has already been done. Our experience in the late war has given us very definite data as to the requirements of both in-

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dividual and collective training for the soldier. We know quite definitely what to expect of him, and we also know quite definitely the time and work required to prepare him to do what we want him to do. A great deal of this has been embodied in pamphlets and memoranda which will be furnished you in connection with your study. These pamphlets will furnish you not only a guide in your work but will also serve to give you a good idea of what is expected in the way of standards of proficiency.

Exercises.—In connection with this talk, you will find it of value to take the following list of subjects with which you will have to do in training, consider them along lines suggested in this talk and thus fix in your minds their relative importance and value in the work of training:

1. Physical Development.
2. Manual of Arms.
3. Close Order Drill.
4. Extended Order Drill.
5. Marching.
6. Nomenclature and Care of the Rifle.
7. Gallery Practice.
8. Range Practice.
9. Adjustment of the Soldier's Pack.
10. Bayonet Combat.
11. Interior Guard Duty.
12. First Aid.
13. Signalling.
14. Military Courtesy.

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15. Morale.

16. Military Discipline.

Take any one of the above subjects at random, read up whatever you may have on the subject, then ask yourself the following questions:

(*a*) What is the object of this training—is it individual or collective or both?

(*b*) What part does it play in the training of the soldier, the squad, the platoon, the company?

(*c*) Does it contribute in any way to the rest of the man's training—how, and to what extent?

(*d*) What standard of efficiency should be required —how much is needed?

To illustrate, let us take the subject of Physical Development.

Physical development is for the purpose of loosening up the man's muscles, exercising them and developing them for the work of the soldier. It has to do principally with the training of the individual. It contributes only indirectly to the collective efficiency of the organization.

It builds up the man, remedying any special defects he may have, and gets him in good physical condition generally. It gives him control of his body, teaches him how to concentrate on what he is doing, and makes all of his other work easier by enabling him to do it with the least amount of effort.

It contributes to the rest of his training by cultivating in him the habit of attention to what he is doing and of concentrating all of his energies on that particu-

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lar thing. He gets into the habit of putting his whole mind on what he is doing and of doing that thing in a thorough manner. In this way it helps him to learn more quickly and thoroughly anything it may be necessary to teach him.

The work of the soldier requires all-round, average, physical development. The soldier must be strong enough to carry the soldier's load, to march long distances and to resist fatigue and disease. He must be given physical development systematically and progressively, until he reaches this point; thereafter, all he needs is enough to keep him fit and strong.

SYNOPSIS OF TALK

The purpose, scope and standard of instruction and training; Student must know *what* and *how;* No definite formula; Main features; Object of military training; Example; Close order drill; Extended order drill; Marching; Musketry; Character of military training; The human element in military training; Training should follow instinctive lines; Intensive training; Scope of military training; Physical condition; Musketry; Discipline; System in training; Exercises.

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INSTRUCTING

In General.—Instructing is the foundation upon which the leader must build his leadership. Every man who aspires to leadership must make up his mind to reach it through his success as an instructor. Successful leadership depends upon knowledge of training, and successful training depends wholely upon proper instruction.

Instructing is an art. Like all art, it cannot be reduced to rules or formulae because it depends largely upon the character of the instructor. A dull instructor makes the simplest subject hard to understand. A clever instructor makes the most difficult subject interesting and simple.

To become a successful instructor a man must, first of all, like his work. He must be actuated by a love of his profession, and he must take a pride in teaching it, otherwise he can never hope to impress those under him or to inspire them with a desire to learn.

The instructor must not only like his work—he must master it theoretically and practically. He cannot hope to make others understand what he does not himself clearly understand. He cannot hope to teach others to do what he cannot himself do. When his subject is absolutely clear in his own mind, the instructor must set himself to the task of discovering methods of making it equally clear to the minds of those under his instruction.

Putting It Across.—The excellence of an instructor

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is judged only by his ability to impart instruction. Merely knowing a subject, theoretically or practically or both, does not qualify a man to instruct. The test of an instructor lies in his ability to impart his knowledge to another in such a way that the other may easily grasp it, absorb it and put it to practical purpose. In other words, his success depends upon his ability to put his knowledge across and make it stick.

In this connection, the instructor must always bear in mind that demonstration—doing the thing—and application—giving it a practical purpose—are the two surest methods of making instruction register. Nor should the instructor content himself with a single method; he should constantly seek newer and better methods, methods of improving upon his own work.

Study of Methods.—The study of methods is only a part of the instructor's work. He must study men, individually and collectively. He must study the individual to discover the best and quickest method of arousing his interest, of getting his habit of thought, and of planting a lasting impression on his mind.

Two men in arriving at the same conclusion rarely follow exactly the same line of thought. The successful instructor must be able to approach his conclusions by different lines of thought and to size up his men and lead them to the desired conclusion by the most natural line of thought.

For example: No instructor should have any trouble in illustrating the principles of teamwork to a bunch of high school or college boys. Football and the foot-

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ball team are the best possible examples. Besides being an excellent example, it is something with which they are familiar, something they think of naturally.

In the same way, the spirit of military courtesy may be clearly illustrated to the average man by comparing it to the spirit which underlies the ceremonial in a fraternal order.

The instructor must study human nature collectively in order to take advantage of the mob tendency to herd blindly in the wake of a leader. They must study it in order to know how to appeal to men collectively, how to inspire them, how to gain their confidence and their respect and thus control them.

In every group of men there is always one to whom the rest look for a cue. He may not know it and the rest may not know it; nevertheless they follow in his lead. The trained instructor will discover this man and will single him out as the main target for his work, using him for purposes of illustrating movements, etc.

General Principles.—In military instruction, there are certain facts which the instructor should always bear in mind. They are:

1. That military training is nothing more than the application of common sense to military ends; that there is nothing in military training which the average man cannot fully grasp and absorb if it is properly presented to him.

Therefore, when the instructor finds that he is not meeting with reasonable success, he should not attribute it to the stupidity of those under his instruction, but

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should study his own methods and discover what is wrong with them.

2. That those under his instruction come to him with open minds, ready to accept his instruction, ready to be interested in what to them is a new field of work.

If the instructor does not at once arouse and hold their interest, he should look to himself to discover if his own interest is keen.

3. That the average man is more quickly and lastingly impressed with a fact when it is taught to him in connection with some practical purpose. In other words, the average man will grasp a fact more quickly and retain it more lastingly when he knows the reason for it, its purpose, and the relation it bears to the general subject.

Man is a reasoning being. He likes to know the reason why. Tell him why, and the reason is accepted, and the fact incorporated in his habit.

For example: Tell an infantry recruit that he should always attack a mounted man on the left side. Stop at that and the chances are that in a week's time he will have forgotten. On the other hand, tell him to attack the mounted man on the left side because the mounted man's left hand is engaged with the reins while his weapon is in his right hand, hence he fights on his left side with difficulty. Your recruit will not have to depend upon his memory. He will visualize the performance and, his reason having accepted the logic of it, will retain it.

4. That the instructor can make the work hard for

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those under him and for himself by giving it the appearance of being hard. He can make it easy for all by giving it the appearance of being easy. He cannot impress his men with the ease or simplicity of a thing if he hesitates, repeats, or splutters in his explanations. Neither can he impress them with the ease or simplicity of an exercise if he bungles it himself.

5. That men will remain interested in work only as long as they feel that they are learning or improving; that instruction used as a time-killer is worse than a waste of time because it kills at the same time the interest and enthusiasm of those under instruction.

Method of Instructing.—With these principles in mind, the following outline of method will be of use to the new instructor:

1. First explain thoroughly what is to be done. Explain the reason for it. Show the part it plays in the general scheme of training. Give the man credit for being interested in what he is trying to do.

2. Illustrate by doing the thing yourself if possible; if not, use some of the men to illustrate it. Don't be afraid of wasting time. Explanation and illustration are half of the game.

3. Explain what the text means. Don't use the words of the text in explaining. Translate it into everyday language with which the student is familiar. Don't hesitate to use slang if necessary to make your meaning clearer.

4. Have those under instruction do the thing. Point out mistakes, if any. Illustrate them. Explain why they are wrong.

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The Instructor.—It has been pointed out that the man who wants to be a successful instructor must master his subject, must like his work and take pride in teaching his profession, must study men and methods of interesting them and of appealing to their reason and their interest.

This constitutes what may be called the purely technical side of instructing. There is another and more important side. It is:

The Personality of the Instructor.—Some people have naturally the faculty of teaching. They have the magnetism to gain and hold attention, the faculty of expressing themselves clearly and of apt illustration. They teach naturally. The characteristics of such teachers are those which the beginner should study and copy.

What are they?

Interest.—First of all, the good instructor always possesses an interest in his work, interest amounting almost to enthusiasm, interest which catches those under instruction and makes them forget the effort they are expending. The instructor must therefore cultivate the habit of radiating interest in what he is teaching. No matter how dull or insignificant his subject, he must seek to clothe it with interest, make it appear of importance, worth while, and to do this he must never let his own interest flag for an instant.

In addition to this, the man who aspires to be an instructor must take serious thought of himself, inventory himself, discover where and in what particulars

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he is lacking. He must be honest with himself, know himself, his peculiarities and his faults, and go seriously about the task of eliminating them. His ability to interest those under his instruction will depend as much upon his personality as upon his ability as an instructor.

Temperament.—Temperamental fitness ranks equally with physical and professional fitness as necessary qualities in the instructor. Temperamental unfitness disqualifies a leader more surely than physical unfitness. The physically unfit man may be at times only partly incapacitated; the temperamentally unfit man is wholly unfit at all times. The physically unfit man may have some excuse; the temperamentally unfit man has none whatever.

There is no more place in the military profession for brusqueness, rudeness, pettiness or any other form of disagreeableness than there is for the same thing in the ministry, the law, medicine, or any other profession.

The possession of such traits indicates a plain lack of self-control, and the man who lacks self-control is not fit to be trusted with the control of others.

The atmosphere of military training is one of serious, enthusiastic, intensive effort, unbroken by disagreeable incidents which distract the attention from the work and destroy interest in it. The instructor must create and keep up this atmosphere. His attitude must be the keynote. His conduct must sustain the atmosphere. He must realize at all times that he can either enlist and hold interest or destroy it by a word.

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Men work best, physically or mentally, in a cheerful atmosphere. They also work best when they have the team feeling, but the team feeling must embrace all present. It cannot exist if there is any feeling, conscious or unconscious, of hostility among the members of the team. An act of hostility toward one member of the team affects the whole team by destroying the harmony of the teamwork.

The instructor must cultivate the habit of cheerful alertness. He must make himself a part of the team he is instructing, giving his instruction seriously and earnestly, and making corrections in the manner of helpful assistance. He must take it for granted that mistakes are not made intentionally.

Never appear before your men in any but a cheerful frame of mind. Never have the least appearance of a grouch.

Give your instruction in an alert, confident manner. Appear interested in what you are about to do.

Don't be snippy.

Don't use sarcasm. Don't try to be funny.

Don't hurry. You are likely to make mistakes if you hurry, and the instructor should avoid making mistakes.

Don't lose your temper. It means losing control of the situation.

Don't use profanity. Use slang if necessary to drive home what you are saying.

Don't scold. The attentive man does not deserve it; the inattentive man pays no attention to it.

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Have infinite patience.

Don't patronize your men. Take them into your confidence. Tell them what you are about to do. Include yourself in the work. Make use of the little word "We." Say, "We are going to do so and so," not "I am going, etc." Make them a part of the work. Have them work for you. If they are not working for you, they are working against you.

If anything requiring disciplinary action occurs during the instruction, wait until the end of the period; then correct the individual alone. Don't let one man's misconduct break the thread of interest for the whole team.

Remember at all times that while military rank clothes the instructor with authority to enforce his instruction under him, it is a sign of weakness in the instructor to lean on his rank. Make your instruction so interesting and your command of the subject so certain that the matter of rank will be forgotten for the time. Leaning on your rank indicates that you lack in personality and efficiency.

Personal Appearance.—Personal appearance plays a most important part in the instructor's work. Remember always that the men under you are always, either consciously or unconsciously, making a model of you —copying you in everything you do. It is an old army axiom that you can tell what kind of officers a company has by looking at the company. If it is a neat, trim, well-dressed company, you may be assured that its officers are the same; if it is a slovenly, dirty, careless company, its officers will be the same.

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Again, there is a psychological side to the matter of your appearance. Your appearance cannot fail to effect the manner in which you will impress your men in your instruction. Imagine going to see the head of a big business and finding a slovenly, unkempt man. You wouldn't give him your business. His outward appearance would destroy your confidence in his business ability. The men under you are giving you their business—their time, their energy, their interest. Don't risk destroying their confidence in you at the very start.

There is a practical side to the subject. Smartness in everything is essential in all phases of military training. No man can do things smartly unless he has the "feel" of being smart. He will not have the "feel" if he is dirty, unshaven, unbuttoned or slovenly. It is the instructor's first duty to see that he is none of these.

You cannot with good grace or effect correct a man for any lack of smartness if he sees the same lack in you. He has the same right to be unshaved that you have–; the same right to unpolished shoes. His clothing spots as easily as yours.

So, make a practice of inspecting yourself closely each time before appearing in front of your men. Neglect nothing. Begin at one end of yourself and go to the other—*hat on straight; hair brushed; shaved; coat or shirt clean, buttoned up; clean linen; belt properly adjusted, not sagging; no wrinkles in the front of the blouse; breeches clean and pressed; leggings and shoes polished?*

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Now a word as to the practical side of the work of an instructor. Preparation for the daily work is a most important part of the instructor's work.

Preparation.—When the instructor appears before his men he must not only know his subject thoroughly, but must be so prepared that he carry on the instruction without hesitation or hitch.

He must have in mind a program to follow and must be letter perfect in every detail that enters into the performance. This means that he must make careful preparation in advance. He must not only study the subject to master it, but must study his plan for carrying out the instruction in detail.

Study of the Subject.—This embraces two distinct phases, namely, study of the subject as a whole, and study of the part assigned for the day's work.

It is assumed, of course, that you have studied your subject and understand it in general. You are not expected to carry constantly in your mind all of the details of every subject you must teach, but you are expected to understand the principles thoroughly and to know the details well enough to require only a short brushing up.

Therefore, in brushing up on the subject as a whole, begin by asking yourself a few questions. This will serve the double purpose of refreshing your mind and of bringing out the outline of your explanatory talk.

Your self-interrogation should take something of the following form:

1. What is the purpose of this instruction? What is the soldier going to learn from it?

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2. What part does it play in the whole scheme of training of the fighting unit?

3. How important is it? How does it compare in importance with the rest of the training?

4. Am I likely to overdo this and give the men a false idea of its importance?

As an aid to answering your own questions, if necessary, glance through the introduction to the text and read over the general principles, if any.

When you have reviewed the subject to your satisfaction, take up the part assigned to the day's work and study it in detail.

Read it over carefully. Be sure you understand it all.

As you read the text, visualize the movements. Get a clear-cut picture in your mind of your men executing each movement. If you have any difficulty in visualizing the execution, help yourself with diagrams, or use checkers, beans or buttoms to work out the movements.

If the subject for instruction is individual work, practice it yourself and be sure you can do it properly and easily.

The sequence in the text will generally furnish you with an outline of your program of work. If it does not, work one out in your mind, being careful to make each phase of the work follow naturally after the other. Don't skip about or jump from one thing to another. Don't mix two kinds of instruction in one instruction period. If necessary, finish one kind of

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instruction, give a rest, and then take up the next.

Decide just where you are going to hold your instruction. Cover the ground in your mind and fit your work to the ground. Map out a plan to use the ground so that it will not be necessary to make changes after the work has begun. For example: Don't deploy your company for physical drill and then discover that the sun is in your eyes or in the men's. Don't go out for extended order drill on a piece of ground that is too small for the full extension. If you do, you will have to explain that the movements should be so and so and the men will have to use their imaginations instead of seeing the movement as it should be, and your instruction will not register.

The Weather.—Don't count on the weather being favorable. Always be prepared for bad weather. Have some kind of alternative indoor instruction in mind so that you can go ahead with the minimum of interruption. Don't let yourself be caught in the position of "What shall we do next?"

Material.—If your instruction is going to require the use of any materials, be sure that they are ready in advance. Have them placed where they will be needed. Don't delay or interrupt your instruction to get material or have it placed.

For example: If you are to have gallery practice, have the targets placed in advance. See that pasters and paste or paint are provided. Attend to this yourself. Don't depend upon someone else.

First Call.—Never be late for drill or instruction.

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This may seem a small thing, but it is most important. Allow yourself plenty of time without hurrying.

Look yourself over and be sure that you are properly and smartly dressed and equipped before appearing in front of your men. Never go to a formation putting on your belt or gloves.

Summary.—Finally, let me try to put it all in a nutshell for you: You must love your work. If you find that you do not, then get out of it and try something else, for you will never make a success of it. Master your subject theoretically and practically. Study it constantly. Never be content with your way of doing things; seek to improve your methods every day. Study men, try to discover their ways of thinking; try to put yourself in their places and see things as they do.

SYNOPSIS OF TALK

Instructing in general; Putting it across; Study of methods and men; General principles; The instructor; Interest; Temperament; Personal appearance; Preparation; Study of subject; Program; Weather; Material; First call; Summary.

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PHYSICAL DEVELOPMENT

The subject of Physical Development is one of the utmost importance to men in every walk of life. No man, whatever his business, can function at his best or at his greatest capacity if handicapped by physical weakness. Even brain power suffers in just the proportion that health and physical condition is lacking. One authority on the subject once aptly remarked that "Nature demands her due. In a sick body, the mind cannot remain fresh and clear. It is shunted by the selfish body from the great things to which it should be devoted." And it may be accepted as a fact that no man can devote his entire energy or attention to any purpose, high or low, when subjected to the constant reminder of illness or imperfection. The baseball pitcher with a weak arm never extends himself. He has constantly on his mind the fact that, if he does, the time is sure to come when the final break will come. The football player with a week knee is apt to shun scrimmages in which his knee will have a chance of injury. Neither the baseball pitcher nor the football player consciously avoids danger. Each may be intent on giving his best to the work of the moment, but nature is on guard all the time and the body seeks to protect itself in spite of the best intentions of its owner.

In Civil Life.—In civil occupations, physical development, while of the greatest importance to the individual, is nevertheless capable of being counteracted to some extent by the nature of the man's occupation. In civil

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life the man is at liberty to choose the kind of work best suited to his physical condition—at least to choose work in which his lack of physical condition will handicap him the least. If his back be weak, he can secure work in which he will be able to save his back from strain. If his legs be undeveloped, he can secure work which requires but little movement on his part. In this way he is able to counteract or discount his physical defects.

In Military Life.—In the military profession, however, the situation is different—the opportunity for reconciling occupation with physical condition is far more limited. While it is true that military employment, in the broad sense, includes many activities which may be exercised by men who are not in perfect physical condition, the strain of active operations is likely to find the weak spot in a defective physical armor and, working steadily upon this weak spot, eventually undermine the whole physical structure.

For example: At first glance, it would seem entirely possible for a man of weak physical condition to do the work of a clerk in any of the many clerical positions connected with military employment. However, it must be recalled that these duties, though light in themselves, may at times call for long and irregular hours, amid uncomfortable and unhealthy conditions, with irregular and sometimes insufficient food—all of which will combine and sooner or later "get" the man who is without a full reserve tank of energy upon which to depend in emergency.

The Fighting Man.—For the fighting man, physical

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development is the only foundation upon which he can hope to build his efficiency, and it is only on perfect physical condition to begin that he may hope to build up the development which the strain of military operations requires of the soldier.

General Woodhull in his Notes on Military Hygiene remarks that "The whole military fabric rests upon the physical character of the individuals composing it." In other words, to be capable of performing the duties of a soldier, to be capable of forming an efficient cog in the military machine, a man must be in good physical condition—moreover, a condition that admits of being developed and hardened to the labor required in military service.

War is literally a struggle between life and death, in which death is caused equally as frequently by sickness as by bullets. The man who entertains a hope of surviving the requirements of a campaign must be capable of undergoing almost any amount of physical and mental strain. In this respect no arm of the service is favored—the members of all are on a par; each must have the groundwork of good physical condition upon which to build, and each must be developed to meet the demands of his particular service. This latter requirement means that each must have special training to fit him for the special kind of work he is to do.

The Mounted Man.—For example, the mounted soldier must be able to ride properly. Almost any man can sit on a horse and be carried from one place to another, but the poor rider eventually kills both him-

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self and his horse. If untrained, the rider knows nothing of how to conserve either his own or the horse's physical energy. Instead of being component parts of an easily operating machine, they work constantly against each other and end by wearing each other out.

The Aviator.—The aviator must have special training to develop those faculties which must act amid the new and unusual conditions of flying. In flying, ears, eyes, brain and muscles must act together under conditions that make new demands upon them. The man who has perfect control of himself on the ground may find himself subject to dizziness in the air. The man whose heart acts normally on the ground may find that it fails to adjust itself to the conditions of a higher altitude. Both of these conditions must be remedied by physical development, else the man, whatever be his physical condition otherwise, is of no use as a flier.

The Foot Soldier.—The foot-soldier, above all, must be trained specially and constantly. He is, so to speak, an independent fighting unit, that is, he is completely equipped at all times to meet any emergency. He can fight, eat or sleep at any moment without assistance, but in return for his independence he must be prepared to pay the price. He must rely on his own strength and endurance to carry himself, his weapons, ammunition, food and shelter over long distances and to bring him to the scene of battle in condition to bear the brunt of the fighting. He must be able to march when his legs threaten to go out from under him at each step, when his stomach aches from hunger, and

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when his throat and mouth are as dry as cinder. He must be able to snatch rest when he can, or, if need be, go without it. In other words, he must be prepared to go to the limit of human endurance, and then a little beyond. One authority has aptly summed up the physical requirements of the foot-soldier in saying that "We beat the enemy quite as much with the legs as with the rifles of our infantry."

Necessity for Physical Development.—Enough has been said to indicate beyond question the necessity for good physical condition in military employment. It is essential from the very beginning, but mere perfect physical condition is not all. It is, as we have said, merely the foundation upon which to build. A man may be physically perfect but without either strength or endurance. He may have strength in abundance but not know how to employ it to the best advantage. He may have potential endurance but not know how to conserve or economize it. He may have both strength and endurance, yet forfeit all of his advantage by not knowing how to protect himself from the effects of uncomfortable or unhealthy surroundings. We have daily illustrations of the ignorance of man as to how to use and conserve his strength. For example, go into a gymnasium and watch a trained gymnast. He performs gracefully and apparently with the greatest ease, because he knows just what muscles to use and how much strength to employ. The untrained man, on the other hand, is awkward and makes hard work of everything he attempts, because he puts his whole body into every

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feat and employs his whole strength in everything he tries to do. He jumps heavily over a fence, using arms, legs, body, every limb and muscle. He lands stiff-legged like a lump of putty, jarring the breath out of his lungs. The trained athlete vaults highly over the fence, using his arms principally. He alights easily and lightly, using his legs properly, and his lungs are no more disturbed than if he had been lifted over the fence by someone else. The awkward man has burned up an unnecessary amount of physical energy; the trained man has wasted none. This principle practically enters into every act of the soldier; there is an easy, economical way of doing everything—the trained soldier knows the easy way and employs it. The untrained soldier knows only how to make it hard. The trained soldier snaps a rifle around as he would a swagger stick. The untrained soldier handles it like a log of wood and wears himself out with it.

The Position of Attention.—The physical development of the soldier begins with the moment when he takes his place for the first time in ranks and awkwardly tries to assume the position of *attention*. This position, properly taken, is the simplest, easiest, most alert condition of the body possible. Essentially, it is paradoxically one of complete physical relaxation, coupled with constant mental alertness and physical readiness. Instruction in this position belongs properly to close order drill, where it will be discussed in detail, but it also has an important place in the matter of physical instruction and development. In this talk it will be

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sufficient to point out the necessity of studying this position from the standpoint of physical training, of instructing men in taking the position in such a way as to avoid all awkwardness and constraint and, at the same time, to preserve absolute and perfect control over every muscle of the body.

Marching.—Here again we have a phase of training which properly is included under instruction in close order drill. Nevertheless it has an important bearing on physical development. The new soldier must be taught to walk in a military manner in order that he may take part in the instruction of various kinds which involve formation and movements. However, the matter of physical development enters the subject in an essential way, and it is the first step toward march training which forms such an important part of the work of the foot-soldier.

March Training.—"Marching," we are told in the Infantry Drill Regulations, "constitutes the principal occupation of troops in campaign and is one of the heaviest causes of losses." From this statement we may judge something of the importance of teaching the soldier to march in a manner that will give him the greatest possible ease and at the same time make him conserve his strength to the greatest possible degree. The manner of walking prescribed in the Infantry Drill Regulations is one that provides for easy bearing and minimum expenditure of energy in moving over a given distance. The reason why most soldiers make hard work of marching and break themselves down in marching is

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that they are not properly instructed in the beginning and are not systematically and progressively trained in the work.

Briefly, proper instruction should in the beginning be directed to the end of producing in the new soldier an easy bearing, an easy, comfortable stride in which the proper means of locomotion are employed in a proper manner. In other words, the man should be taught to use his legs with which to walk—not his whole body, as many do—and to let his body and arms drop into that easy swing which serves as a counterpoise to preserve balance and which does not carry with it an expenditure of unnecessary energy. This is merely preparatory, the ABC's of marching and march training, which includes the carrying of a burden and, most important of all, the accommodating of the stride to the steady, monotonous grind of the marching column. The carrying of a load introduces a new element into the business of marching and the subject of physical development. The added weight brings into play certain new sets of muscles and makes an added demand on sets already in play. For example, in marching without the pack, the muscles of the back and shoulders have little or no work to do. With the pack they must support its weight and transmit that weight through the body to the legs, which are thus given extra work. This means also that the carriage of the man will undergo a slight change, all of which calls for careful attention if we hope to get the best dividends from the man's supply of strength.

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Briefly, the carrying muscles must be systematically loosened up and developed; they must be developed gradually with an increasing load to the demands of the full pack. At the same time these new conditions must be accommodated with marching. In other words, the training of the body muscles in carrying the load must be done in conjunction with the training of the legs in carrying the body. In this connection is another matter to which we have referred—that of marching in ranks. Walking alone and marching in ranks are two radically different operations, involving a radically different amount of energy.

The man walking alone suits his own convenience. He quickens his pace or slows up at will. He rests when he chooses and as long as he chooses. He picks the path to suit himself. In ranks all this is changed. He occupies a certain place in the column, and he must never lose it for a moment. His pace is set for him, and he cannot vary from it. His path is selected for him, and he has to follow it to the inch. His legs must move with the regularity of a part in a big machine, without regard to their condition of fatigue. All of this induces a strain which burns up energy and requires training and development to meet its demands.

Physical Drill.—We come now to a subject which is one of purely physical development, which deals with that of physical development alone—Physical Drill, or Calisthenics.

Briefly, calisthenics is a general term, descriptive of a form of physical exercises, including movements of the

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arms, legs and body, intended to loosen up and develop them in particular and the body as a whole. These exercises serve a double purpose, one equally as important as the other, from the military point of view. As we have said, the primary purpose of these exercises is to loosen up the muscles of the body and to develop them to meet the demands of varied military employment. In addition to this, as we have pointed out in another talk, they serve as valuable disciplinary training. This phase of calisthenic training has had more attention and higher development in military instruction than elsewhere because of the greater stress laid on discipline and everything relating to it in military employment.

It is a fact that few of us follow occupations which serve to keep our bodies as a whole in proper physical condition. Our daily occupations do not provide the kind or amount of movement necessary to keep all of our muscles in daily play. Our work develops only those muscles and sets of muscles which we employ in that work. The result is that, unless we adopt some systematic physical training to supplement our daily work, many of our muscles in time become almost permanently inactive.

For example, a man who works at a desk all day long and rides to and from his office gives his legs practically no exercise. Inevitably the muscles become soft and flabby, and in time they will cease to be of any good use. Some occupations develop one part of the body, some another; very few of them develop the body as a

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whole. In brief, daily work may be depended on only for the physical development needed to meet its demands.

Now the soldier's work requires all-round physical development. His life is one of constant physical activity of the most varied sort. One day he may be called upon to march all day, carrying a load amounting to a quarter or more of his weight; the next, he may be at work from daylight to dark or even longer, loading heavy boxes of ammunition or rations, or building roads, or doing any one of the many things that fall to this soldier's lot. His arms, his legs, his body must be ready at any moment to stand up under the strain of all this varied employment. Moreover, each must be developed to its best, and all parts of the body must be uniformly developed. A single weak spot will sooner or later cause the man's complete collapse. They have a saying in the cavalry that the gait of the troop is the gait of the slowest horse, meaning that the troop as a whole cannot travel any faster than the slowest horse in the troop. The same principle applies to the human body. A soldier's strength and endurance is measured by the strength and endurance of his weakest member. Systematic and uniform development of the body as a whole is the only safeguard against weak members.

This is provided for in the calisthenic work. The exercises are practically without limit, in fact, are limited only by the ingenuity and anatomical knowledge of the instructor. With an instructor who knows his business no muscle can hide itself away and escape its

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proper share of work. The instructor discovers it, singles it out and puts it to work, sometimes alone, sometimes with others of the muscle team.

These exercises do not provide for complete development and hardening. They are the preliminary steps. Through them the muscular system is reached, awakened, exercised and made supple and alert. The hardening comes with the other routine of the soldier's training.

Disciplinary Value.—We have said that these calisthenic exercises have a high disciplinary value. To make clear just the manner in which they serve this purpose, you must bear in mind that few people have anything like proper control over all, or any, of the muscles of their bodies. They may think they have, but they haven't. The proof of this is demonstrated by the awkwardness with which the average man does for the first time even the simplest feat in a gymnasium.

Return for a moment to the illustration we have used previously: the trained gymnast vaults lightly and easily over a bar or a side horse. He lands light as a feather. His heart action does not vary a fraction. The muscles of his body have merely undergone a pleasant and exhilarating form of exercise. On the other hand, the untrained man goes about this simple feat as though his life depended on it. He puts into the effort every ounce of his strength—arms, legs, body, all. He throws himself over and lands with a thud. His heart action speeds up. His breath goes. In brief, he makes hard work out of a simple and easy thing.

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Why? Because he hasn't proper control over the muscles of his body. He cannot make them do the things he wants them to do—the way he wants them done. In a word, there is no coordination, no teamwork between mind and muscle. Take another example. Recall the time you had learning to dance. The movements of the feet looked simple and easy, but you couldn't make your feet do them—couldn't make your feet behave, so to speak. Your mind was concentrated on what your feet were awkwardly shuffling through. You perspired, got out of breath, and shortly wore out both yourself and your partner. Gradually it became easier. Your feet began to move easily, seemingly without effort on your part. Your mind began to find time for your partner. You lost your feeling of effort and began to experience one of pleasure and exhilaration. Why? Because, finally, your mind had got control of your feet so it could control and direct their movements and coordinate them with the music and with those of your partner. Once attained, this control of mind over muscle becomes largely subconscious, but not unconscious—the mind is always on the job, alert, and active, ready to jump into full control the instant anything goes wrong. It is the discipline of mind over muscle. This is what calisthenic exercise does for the man. It gives his mind this kind of control over every muscle in his body. He must be able to move arms, legs, body, up, down, twist, turn, bend on the instant. Moreover, he must be able to prove his control over his body by doing all this in perfect unison with a dozen or a hundred

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other men at a signal or command from the instructor. This means that his eyes must see, his ears hear, his mind coordinate and transmit, and his muscles act, on the instant, with perfect teamwork and precision.

The man must be able to concentrate his whole attention on the instructor and must have such control over his muscles that they act in response to his subconscious commands.

The man who is able to concentrate his attention to such an extent on the business in hand, who has such control over his movements, and whose mind is trained to instant, subconscious obedience to the word of command has gone a long way toward a state of perfect discipline in all things. Moreover, he has arrived at a condition of mind which enables him to concentrate his whole attention on what he is doing, a long step toward expediting his instruction in any phase of training.

This may all sound rather complicated and difficult, but it is not. On the contrary, in practice it is quite simple. The exercises begin with the simplest movements of the arms and legs and progress by easy stages, as control is gained, to more complicated and more difficult movement and combinations of movements.

The Formula.—The only formula which the man must bear in mind is: Get hold of yourself, get your mind on the job, get on the jump—the instructor will do the rest.

The Instructor.—What we have said in the talk on instructing applies particularly to the work of instructing in this connection. In this, the instructor must

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bear constantly in mind that he is building the physical and disciplinary foundation upon which the whole structure of his organization's training and efficiency must stand or fall. The instruction must be given the most careful study and attention in every detail if proper results are to be hoped for.

In addition to what has been said of instructing in general, for this work, the instructor should give some study to the general anatomy of the human body—enough to know the principal organs and the muscular system and to enable him to locate and reach them with the right sort of exercise. Otherwise, his efforts are likely to result in little more than spectacular collective exercises of little physical benefit.

Conclusion.—In a talk of this length it is hardly possible to give more than a sketchy bird's-eye view of the subject of physical development. The subject possesses many phases, each of which is a study in itself. All it is possible to do in this talk is to point out the importance and bearing of the subject as a whole and to indicate in a general way the work which an officer must be prepared to do along these lines.

This work falls almost wholly upon junior officers, platoon leaders and company commanders. They must be prepared to go about it and put it across or must look forward to seeing their organizations fail in the crucial test of operations.

SYNOPSIS OF TALK

Importance of physical development to men of every class; Brain power; In civil life; Ability to choose occupation; In military

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life; Examples, clerks; The fighting man; General Woodhull's remark; War a struggle between life and death; The mounted man; The aviator; The foot-soldier; necessity for physical development; Differences between a trained gymnast and the average man; The position of *attention;* Marching; March training; Walking and marching in ranks; Carrying the pack; Physical drill; Occupation and physical development; The soldier's work; Uniform development; Disciplinary value; The gymnast; Learning to dance; Control of mind over muscle; Concentration; Teamwork of eyes, ears, mind and muscles; The formula; The instructor; Conclusion.

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CLOSE ORDER DRILL

The Mill of Instruction.—Close Order Drill has been called The Mill of Instruction, meaning that it is the hopper into which the raw, untrained human material is poured and from which it emerges, made over, reformed and ready for the polishing up which it receives in the other schools of instruction. In this sense it is a mill—one whose processes should be attended with the greatest care, for on the results attained in this mill depends much of the success in the later training of the soldier. In other words this mill gives him his foundation upon which must be built the whole structure of his military training and instruction.

Necessity For.—The Infantry Drill Regulations gives us one clue to the part which close order drill plays in the training of the soldier, in one of the general principles in which we are told that "Drills executed at attention and the ceremonies are disciplinary exercises designed to teach precise and soldierly movement, and to inculcate that prompt and subconscious obedience which is essential to proper military control."

In brief, we are given to understand that close order drill, which is purely a drill at attention, is mainly a means for promoting discipline. However, it serves another and an equally important purpose which is also indicated in the general principles we have quoted —it provides the machinery for "proper military control."

As we have pointed out in the talk on Organization,

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and again in the talk on Discipline, the character of military employment is such that we must be able to handle large bodies of men in comparatively limited spaces and to do it without confusion or disorder. This means that we must have precise formations in which men may be grouped so that they occupy the minimum space, and we must have precise movements whereby they may be moved from one formation to another. This is precisely what close order drill provides—a series of convenient and compact formations in which every man, every unit, has its prescribed place, together with a series of movements whereby these units may be maneuvered at will and without disorder. Viewed in part and as a whole, it is therefore obvious that the subject of close order drill is of the utmost importance in military instruction since it provides the discipline necessary to the control of the soldier at all times and, at the same time, provides the mechanism for making use of him.

Close order drill has been for many years a subject of much discussion. It has its adherents and it has its opponents. On the one hand, its adherents claim for it that it is the basic school for disciplinary training and for training in all movement. On the other hand, its opponents claim that its principal purpose is to teach necessary movements. Its adherents would devote the greater part of the soldier's time to this instruction, while its opponents would allow it no more time than is necessary to learn the few simple formations and movements.

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Both are wrong. Both are sure to fall into serious error and the instruction of the soldier under either will surely suffer.

In the first place, as we have indicated, close order consists of a few simple formations and movements which permit of no variation. Drill in close order may therefore easily become deadly monotonous, especially if, as is too often the case, it is used as a time-killer. The continued repetition of a few movements eventually results in listlessness or irritation on the part of the men, either of which is positively destructive of disciplinary effect. In plain English, the men become worn out, sick and tired of it, and all good effect is gone forever. As we have pointed out in the talk on Discipline, men get a certain inspirational effect from collective movement. We like to do things in unison—like to sing in chorus for example, but if we sing the same song over and over, we soon tire of it and if it be repeated often enough, we get to the point where we never want to hear it again. For example, the men of a company get a certain pleasure out of carrying a good line past a reviewing officer, but if they were made to repeat it over and over again, the pleasure would soon be gone and the line would soon resemble a snake.

On the other hand, those who would limit work in close order to that necessary to learn the formations and movements would find their other work of instruction sadly handicapped. They would find it characterized by looseness, awkwardness, lack of precision and a general atmosphere of disorder. The safe and proper

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course lies midway—a course in which close order is used carefully and intelligently to build up a foundation of precision and teamwork, followed by enough of it from time to time thereafter to keep that foundation from disintegrating.

For example: Let us take the turn on the fixed pivot—a movement of basic importance and one requiring careful preliminary instruction. In the beginning, it should be analyzed and executed in detail until every member of the squad knows exactly what to do and does it precisely and invariably. Having gone thus far, the movement in detail should be discontinued except for an occasional short period now and then as a matter of test.

Beginning the Introduction.—The instruction of the recruit begins with the moment when he first takes his place in ranks and tries awkwardly to look like a soldier. He is keenly conscious of being in a new and strange atmosphere. He looks forward to learning new and strange things and to doing them in a new way. He is apt to have a feeling that it will be hard for him to learn to do these things and this idea must not be allowed to fix itself in his mind or to grow. It must be removed by the instructor and he must do it by the way in which he begins the instruction. He must begin by putting the recruit at ease, mentally as well as physically. He puts him at east physically by having him stand naturally, and he puts him at ease mentally by explaining to him what he is to do, how he is to do it and, above all, showing him that it

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is simple and easy. He must then teach the recruit to do the thing in the same easy simple way.

The Position of Attention.—Naturally, the position of the soldier or of attention is the first thing to be taught the recruit. As we have pointed out in another talk, the position of attention is the cornerstone in the foundation of the soldier's training. It is essentially a position of alertness, of readiness for instant action. It is, so to speak, the starting position for nearly everything the soldier has to do. It must carry with it perfect control of the body and perfect ease. If the soldier is constrained in this position, he will be awkward and ill at ease and this awkwardness and uneasiness will cling to him in everything he attempts to do.

The position of the soldier is, at once, a position of perfect control, and a position of almost complete relaxation. When properly taken, the necessary muscular effort is reduced to a minimum and is, at the same time, properly distributed to the members of the body and to the various sets of muscles.

All of this points to the necessity of careful instruction and careful training, neither of which is possible unless the instructor himself understands the principles upon which the position is based.

Taking the position as described in detail in the Infantry Drill Regulations, let us inquire into the reasons, if any.

"Heels on the same line and as near to each other as the conformation of the man permits.

Feet turned out equally and forming an angle of about forty-five degrees."

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The position of the feet forms the base or foundation upon which the weight of the body rests. The broader this base is, the greater will be the stability of the body. We put the heels together for the sake of uniformity. If a number of men were told to put their heels three or any other number of inches apart, no two of them would be likely to get the same or the proper distance, whereas, they all know from the feel when they have them together. If we put the heels together and place the feet side by side, we have a very narrow base which give no sidewise steadiness, therefore we turn out the toes to increase the area of the base and provide for sidewise steadiness. The angle of forty-five degrees is a natural and comfortable angle and at the same time gives our base the maximum area. It is also about the angle at which the feet are planted in walking, thus enabling the soldier to step off without preliminary movement of the feet.

"Knees straight without stiffness."

The bones of the legs form columns held in place by the muscles, upon which the weight of the body rests. If these columns are not straight—if the bones are not end-on and in prolongation of each other, the muscles will have extra work holding them in place. If, for example, the knees are bagged forward or stiffened to the rear, the muscles of the legs must take on extra work and strain to hold the bone-column in position. This may be illustrated by springing the knees to the rear and then feeling the muscles of the calf of the leg.

"Hips level and drawn back slightly, body erect and resting equally on both hips."

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If the hips are not level, that is, if the man is slumping down on one hip, it means that one leg is supporting most of the weight of the body and that the muscles of that leg are doing more than their share of the work. Drawing the hips back slightly overcomes the tendency to stick out the abdomen which, in turn necessitates rearing back to preserve the balance and this brings about sway-back and strain on the muscles of the back. The body should be erect and resting equally on both hips in order to distribute its weight equally to both legs and to relieve the muscles of extra work in holding it in position.

"Chest lifted and arched. Shoulders square and falling equally."

Lifting the chest gives the lungs greater space, draws the abdomen up and tends to force the shoulders back. It thus provides for better breathing and at the same time makes for better distribution of the body with respect to its axis.

"Arms hanging naturally."

When they hang naturally, no muscular effort is required. In any other position, muscular effort would be required to keep them in place.

"Head erect and squarely to the front, chin drawn in so that the axis of the head and neck is vertical; eyes straight to the front."

This merely means that the head should be held in a position of perfect balance on the neck, thus freeing the neck muscles from all work in keeping it in place. A soldier's eyes should always be to the front.

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"Weight of the body resting equally on the heels and balls of both feet."

This provides for the equal distribution of the weight over the whole base formed by the heels and the outturned toes. As an experiment, try leaning forward until the weight is on the toes, or leaning back until it is on the heels.

Method of Instruction.—All of this should be explained and illustrated to the recruit. He should be required to take the position in detail, experimenting with each phase until he gets it correctly. He should then be required to experiment with taking the position as a whole at will and finally at command. This instruction should be varied with something else, saluting or the facings for example, else it will quickly become tiresome. Above all, the recruit should not at first be held long in this position.

Marching.—Having been taught the position of the soldier, the next thing, logically, is to teach him to move from this position to some other—in other words, to march. Now, marching may appear to be nothing more than walking, and if people all walked as they should, this would be true. But it is a fact that few people do walk properly. Most of them have some bad habit that uses up more energy than necessary in walking. They either carry themselves in an awkward manner, don't use their arms properly or put a lot of unnecessary motion into their walking.

The military stride is intended to eliminate all this. The soldier needs all of his strength and he can-

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not waste any of it unnecessarily. When he marches, he must do so in a manner that will be the easiest for him—body free and carried naturally, arms swinging naturally to assist the stride, no unnecessary swaying of the body, and the legs moving smoothly.

The Infantry Drill Regulations provides for all of this:

"Shift the weight of the body to the right leg, left knee straight."

The soldier always steps off with the left foot, therefore he must take the weight off that foot before he can move it forward. This shifting should be done without any visible movement.

"At the command *March*, move the left foot smartly straight forward 30 inches from the right, sole near the ground, and plant it without shock."

By moving the foot straight to the front, all unnecessary movement is avoided; by keeping the sole near the ground, lost motion and unnecessary exertion in lifting it and lowering it are avoided; by planting it without shock, all jar to the body is prevented. In other words, it gives a smooth, easy stride.

"The arms swing naturally."

Nature intended man to use his arms as an aid in walking. Analysis discloses the fact that walking consists of a succession of movements in which the walker is continually losing and regaining his balance. For example, as he advances his left foot, he loses his balance until he plants that foot. However, the instant that foot is planted, the right leaves the ground and is

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advanced, thus again losing the walker's balance and so on. To counteract this tendency to topple over, the arms swing like pendulums forward and across the body, to just the amount required to preserve the equilibrium. If the arms do not swing, as for example when in the pockets, the shoulders will sway in an unconscious effort to take their place. With the arms, it is a natural easy movement involving no fatigue. With the shoulders loaded with a pack, it is not a natural nor an easy movement and it gives rise to fatigue.

Double Time.—Marching in double time presents nothing new. It is merely an accelerated walk. The stride is longer. The body inclines more to the front. The arms swing through a greater arc. The legs move in exactly the same fashion as in marching. Double time might be described as a running walk, and it should be taught in such a way as to avoid any new or unnecessary emotions.

The Salute.—The next thing in connection with the instruction of the soldier is the salute. This has been discussed in detail in the talk on Military Courtesy.

The Manual of Arms.—The manual of arms consists of the movements necessary in handling and carrying the rifle. These movements are simple and easy, so much so that in time the soldier comes to do them subconsciously, without a thought. However, in the beginning, they are the stumbling block of the recruit, principally because he is unaccustomed to the weight and feel of the rifle. This furnishes a clue to the manner in which he should be taught.

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To begin with, the recruit should be encouraged to handle his rifle as much as possible. He should be given simple calisthenic exercises with it, raising and lowering it from the ground, tossing it from hand to hand, moving from one position of the manual to another, as an exercise. When he has become accustomed to the weight and feel of the rifle, when it is merely an eight or nine pound, well-balanced weapon and not a stick of heavy cordwood, instruction in the manual of arms should begin. A few cautions should be borne in mind:

Begin the instruction without gloves, barehanded.

If possible, have the recruits remove their hats, especially when first teaching the shoulder movements.

Always have the rifles at the order while explaining.

Give frequent rests.

Encourage voluntary manual.

Have short drill periods.

The Squad.—Close order drill proper begins for the recruit in the movements of the squad. It may also be said to end, for all practical purposes, in the movements of the squad. When the recruit has been trained to the point where he loses his identity in the smooth, well-oiled machinery of squad movements—when he stops making mistakes that spot him in the squad work—his responsibility with regard to close order drill is at an end.

The movements of the squad are few and for the most part comparatively simple. They need only to be taught carefully and in detail.

Reference has been made to the squad movement,

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the turn on the fixed pivot. This is perhaps the most difficult of all squad movements—certainly it is the one most frequently slurred over both in instruction and in practice. There is only one way to avoid this, and that way is by instruction of each man in the details of its execution.

With the squad formed at proper intervals and distances, the instructor should explain the movement fully, outlining on the ground just what each man is to do.

Then taking the place of each man in turn, he should illustrate each man's part in the movement.

Assuming for the discussion, that the turn is to the right: the instructor explains that at the command, *March*, No. 1 of the front rank faces to the right in marching and marks time, stepping off with the left foot and facing simultaneously to the right. He then takes the place of No. 1 and illustrates the movement.

In similar manner, he then explains to Nos. 2, 3 and 4 of the front rank that, at the command march, each steps off at the right oblique to his place on the new line, where he marks time, lining up on the pivot. He should then mark out the route for each on the ground and, taking the place of each in turn, execute the movement.

Following this, he should give the necessary commands to cause each of them in turn beginning with No. 1, to execute the movement.

Leaving them in their new position, he should go to the rear rank. Beginning with No. 3 of the rear rank,

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he should explain that he marches straight to the front 3 paces, faces to the right in marching and marks time. He then shows him. In the same way, he shows No. 4 that he marches straight to the front beside No. 3, steps up beside him on the new line and marks time.

Turning next to Nos. 2 and 1 of the rear rank, he shows them how they should face in marching to the left and follow No. 3 in single file, facing to the right in marching and marking time when No. 3 does so. Each, beginning with No. 3, should then be required to execute the movement alone.

When they have done this to the point where they know how to do it properly, they should be required to do it as a rank, the front rank first, the rear rank afterward.

Following this, both ranks execute the movement simultaneously.

Once learned, an occasional review is all that is necessary.

The School of the Platoon and Company.—The rest of close order drill is principally a school for the officer and the noncommissioned officer. They should master their work with the same thoroughness of detail which we have indicated for the soldier. Precision and smartness in every movement should be constantly striven for. Time spent in this work brings a reward to all, officer and soldier alike, in the shape of a comfortable feeling of machine-like teamwork which, in turn, carries with it an increasing confidence in the power and efficiency of self and of the team.

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SYNOPSIS OF TALK

The mill of instruction; Necessity for; Disciplinary training; Adherents and opponents; Danger of too much close order; Beginning the instruction; The position of attention; In detail; Method of instruction; Marching; The military stride in detail; Double time; The salute; Manual of arms; Cautions; The squad; The turn on the fixed pivot in detail; School of the platoon and company.

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EXTENDED ORDER DRILL

In one of its general principles, the Infantry Drill Regulations tells us that simple movements and elastic formations are essential to correct training for battle. It also tells us that success in battle is the ultimate object of all military training. Now battle training, in a broad sense, may be said to embrace directly or indirectly, every phase of military training or instruction. All of the training we give the soldier, either as an individual or as a member of a unit, is directed to the end of fitting him to efficiently perform his duties in battle.

For example: physical exercises prepare the way for battle training by developing the strength and agility demanded in campaign. Close order drill and the ceremonies contribute to the disciplinary training which is required in war. Each of the various classes of special instruction adds something which goes to make up the sum total of battle efficiency in the soldier. But in none of these is there anything which provides for the elasticity required in battle and in the movements preceding battle.

This elasticity and simplicity of movement is introduced into the training of the soldier through the extended order drill, which is merely a collection of formations and movements of use in combat. They constitute, as a matter of fact, the ABC's of combat and embrace only those few formations and movements

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which are necessary in order to handle and control bodies of men under battle conditions.

The necessity for simple and elastic formations and movements under such conditions needs but little discussion. The movements must be simple in order that they may be easily learned, easily retained and easily executed under the confusion and excitement of battle. They must be elastic in order that they may be readily adapted to the various conditions of ground to be encountered in war. In their setting, no two battle-grounds are ever identical; the conditions in no two engagements are ever the same; hence no rigid formation could ever be adapted to any two sets of circumstances.

Again, for the same reasons—because of the confusion and excitement and the varying terrain—both formations and movements must not only be simple and elastic, but they must be such as are instinctive to men under such conditions. The strain of battle dulls the reasoning powers. Discipline replaces reason to a certain extent. If strong enough, the habits of discipline may be depended upon to give us the degree of obedience and control needed under such conditions, even when the reasoning powers have largely ceased to function. But instinct is ever powerful. It is a controlling principle even when reason has temporarily disappeared. Whatever the conditions of confusion and excitement, instinct may be depended upon to guide and control the individual actions. For this reason it should be taken into account and given every

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consideration whenever it is consistent with military requirements to do so.

For example: the command *Follow Me* is an instinctive command of the leader, one that comes naturally to the tongue of the leader. It is a command that a man, temporarily excited and confused, will instinctively recognize and obey. Another example: the prone position of the firing line permits a man to take a position which is instinctive to him when under fire.

Functions of Extended Order.—Extended order drill has for its purposes:

1. To teach the mechanism by which the fighting line is formed, moved, controlled and directed, and

2. To habituate men to control under the greater independence of extended and loose formations.

The subject of training in extended order therefore divides itself into two parts, viz.:

1. That necessary to thoroughly master the mechanism of the movements.

2. That necessary to inculcate discipline and to insure control in the looser formations.

Considering the first requirement—that of mastering the mechanism—while it is simple and easy, nevertheless it requires the most careful attention because it constitutes the foundation upon which battle efficiency is built. As we have said, the formations and movements are simple and easy to learn, but their mastery should be accompanied by all of the close attention to detail with which we approach the precise work of

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close order drill. Indeed, in the actual drill in the mechanism of extended order, we should endeavor to include as much as possible of the disciplinary character of close order.

This drill in the mechanism should be continued until the platoon is able to execute all of the prescribed movements quickly, accurately, from any formation, in any direction, and without the slightest confusion.

The Squad.—Training in extended order, as in close order, naturally begins with the squad. In extended order, this is of great importance not only because the squad is the basis upon which the formations and movements of the platoon depend, but because the squad is a combat unit which must be trained to fight with the teamwork and precision of a machine.

The training of the squad involves a thorough understanding on the part of every man of the squad as to the purpose of every movement. The squad should first be trained to follow its leader, marching in quick or double time, running, halting, kneeling, lying down, rising, creeping, without command other than a signal. Each man must understand that after the command *Follow Me*, he must conform to every movement of the squad leader, without supervision on the part of the leader, leaving him free to concentrate his whole attention on the proper leading of the squad.

After having been taught the mechanism of the deployed line, the reasons for the employment of the deployed line should be pointed out. The men should be told that men cannot fire in the prone position

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except in single rank, that the single rank offers less of a target for the enemy, that cover is more easily taken when men are in single rank and separated some distance from each other. On the other hand, it should be demonstrated to them that the greater the distance separating the men of the squad, the more difficult it is for them to keep together and work together, hence the more important that they conform strictly to the rigid discipline of the firing line. They should be made to understand that they must pay for the added protection which the thin skirmish line gives them, and that they must pay for this protection with added attention to the requirements of discipline and control.

Following this, the squad should be trained in the firings and in fire control, with particular attention to the details of sightsetting, distribution of fire, the use of auxiliary aiming points, and the other details of fire control and direction. In other words, the squad leader should lay the foundation for fire control and direction by exacting the greatest precision in the execution of each detail. Incidentally, this constitutes valuable training for the squad leader himself by inculcating in him the idea that his first duty on the firing line is to supervise the work of his squad. All of this training and instruction should be conducted with the greatest thoroughness and with no thought that it may constitute a waste of time. Every moment properly employed in this instruction will pay liberal dividends in the training of the platoon.

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Assuming that the training of the squads has been satisfactorily completed, the training of the platoon consists largely of instruction of squad and section leaders and of section guides.

Again, there should be no haste. Before attempting any of the movements, full and simple explanation should be made. The execution of the movement should be explained in detail; the positions and duties of each squad and section leader and each section guide should be made clear; if necessary, the movement should be outlined on the ground so that all may see and understand. The movement should then be executed in quick time, a squad at a time if necessary, the closest attention being given to every detail, the same precision being exacted as in close order.

Squad leaders should be practiced in estimating the front occupied by one, two or three deployed squads until they are able to lead their squads to their proper places in the skirmish line by the most direct route and without hesitation or confusion. Section leaders should similarly be trained in estimating the intervals and distances employed in the deployment of the platoon. Guides should be trained in moving to their proper posts.

This is a matter of very great importance, for, if squad and section leaders cannot lead their squads and sections directly and unhesitatingly to their proper places in the various formations, confusion and uncertainty will inevitably exist. This must be strictly suppressed, for, in the excitement of battle and even

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in maneuver, it requires but little in the way of confusion to give rise to panic and ineffectiveness.

The formations which are prescribed in the Drill Regulations have not been fixed upon arbitrarily. There is a reason for each. Unless each is executed with all possible precision, its purpose may be defeated.

For example: There is a reason for the interval of five yards between skirmishers in the firing line. As we have seen, men cannot fire in the prone position except in single rank. Moreover, they must be separated from each other by a sufficient interval to permit of comfortable handling of the rifle. The thinner the skirmish line, that is, the greater the interval between the skirmishers, the less the target presented to the enemy. On the other hand, the thinner the skirmish line, the less the fire volume of the line and the greater the difficulty of control. These conditions led before the late war to a skirmish line in which each man occupied about one yard of front. This interval gave plenty of room for effective firing, gave the maximum volume of fire, and at the same time permitted proper control of the line.

However, the greatly increased volume of machine gun and artillery fire in the late war made this comparatively thick line too vulnerable and it became necessary to thin it out by prescribing greater intervals. To have done this without adding to the fire volume of the skirmish line would have reduced the effectiveness of the skirmish line by something like four-fifths. This was counteracted by the intro-

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duction into the line of automatic rifles which, with their greater volume of fire, gave the thinner line about the same effectiveness as before.

This subject of the interval between skirmishers had a further effect on the formations of the platoon. Formerly it was possible to deploy the platoon in one line and to control it effectively through one man, the platoon leader. However, the wider interval of five yards would have given the platoon a front so great that the platoon leader could not have exercised any control over it. For that reason the platoon was divided into two sections and deployed in two lines or waves, one behind the other.

Approach Formations.—Thus far, we have considered only the formation of the skirmish line and what might be called the logic of the prescribed formations. Extended order drill proper includes other formations which, while not employed in the actual operation of combat, are nevertheless essential to battle training since they have to do with formations and movements leading up to the actual combat. These formations are known as approach formations for the reason that, as the name implies, they are employed in the approach of troops to the scene of actual engagement. The formations to which reference is had are those of Squad Columns and Section Columns.

The reason for such formations becomes apparent when we try to visualize the ordinary course of events preceding an engagement. On approaching the scene of engagement, we see our troops in the ordinary column

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of march along a road, trail or other route. Sooner or later, this column begins to enter the zone of artillery and long range machine-gun fire. In its columnar formation, it presents a large and compact target particularly vulnerable to artillery and machine-gun fire, and easily spotted and reported by hostile reconnaissance in the air. The solution lies in taking up a formation which presents a more scattered target, and which, at the same time, permits of taking advantage of any cover which the terrain affords. As we have pointed out, the skirmish line presents the least vulnerable target, especially to artillery and machine-gun fire and to bombing. On the other hand, it gives rise to dispersion, to lack of control, and to a general slowing up of the advance. The progress of the skirmish line over broken ground is difficult. Units are apt to become separated, to lose their way, and to become involved in a variety of confusing circumstances. Moreover, the premature forming of the skirmish line is likely to key the men up to combat pitch long before such a condition is desirable. All of these circumstances make it desirable to have formations which will reduce vulnerability, permit of steady progress over difficult ground, and at the same time insure proper control of the advance. As far as is possible to do so, these conflicting conditions are reconciled by the use of the squad and section columns. Their use serves to break the compact march column into numerous smaller columns which may be scattered over a wide area of advance without serious danger of con-

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fusion or loss of control. They have the added advantage of disposing the elements of the column in such a manner as to admit of almost instant deployment in any direction.

These formations are not used exclusively as march formations. Occasions frequently arise during actual combat when the advance of the skirmish line as such is not advisable. It may not permit of the best use of available cover. It may not permit of the most expeditious advance. Under such circumstances, the use of the small columns is resorted to.

Training in forming these columns, while important, is simple. Two things only are to be avoided, namely, crowding and straggling, one of which is as bad as the other. Men should be trained to march in these columns with comfortable distance but without lagging to a point which approaches straggling. Section and squad leaders and section guides must be impressed with the necessity of regulating this matter.

The necessity for maintaining interval and distance between these columns is a matter which cannot be too strongly impressed upon noncommissioned officers. It must be borne in mind at all times that these formations are preparatory, that each squad or section column must be in readiness for instant deployment at all times, and that unless direction, distance and interval are strictly maintained, confusion in deployment is bound to occur.

Advance by Rushes.—The movements which we have just been discussing belong properly to the period

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prior to the opening of the fire fight by the skirmish line, although as has been said, they may be used under certain circumstances for advancing the skirmish line even after it has been transformed into a firing or fighting line.

Ordinarily, the advance of the firing line on its objective is effected by means of a series of rushes, in which a portion of the firing line moves rapidly to the front, for a short distance, under cover of the fire of the rest of the line. The principle governing these rushes should be thoroughly understood, in order that this method of advancing the firing line may be intelligently employed.

In the first place, it must be understood that fire is only opened in the attack when it is no longer possible to advance without wholly or partially subduing the enemy's fire. In other words, there is no excuse for stopping to open fire and for employing the relatively slow method of the approach by rushes until compelled to do so by the enemy's fire. The attack having once been opened, the volume of fire to be maintained thereafter is regulated to the amount necessary to keep the enemy's fire under control—in other words to maintain fire superiority. Depending upon the amount of the enemy's fire, it may become necessary at times to employ all of the rifles on the firing line at their maximum effect. Under some circumstances, it may become possible to suspend the fire of the entire line for a short period during which the whole firing line may make an advance. The

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normal situation will, however, ordinarily be a mean between these two, that is, it will ordinarily be necessary to keep a part of the rifles in action while a part suspend firing and make an advance. The cardinal principle is to advance as rapidly and as aggressively as possible, therefore to make the rushing fractions as large as possible. This calls for the exercise of judgment on the part of the leader in command of the firing line. If the rushing fraction be smaller than necessary, the advance of the line as a whole will be unnecessarily slowed up; if it be too large, the danger of losing fire superiority will be incurred.

The essential point about the rush of a fraction, whatever may be its size, is that the rush be made with as little interruption of the fire and with as little advertising of the fact as possible. This means that the advancing fraction must be able to cease firing without unnecessary delay, should spring from the ground without any preliminary movement, rush at top speed, throw itself to the ground and open fire, all in such a short time that the movement has been practically completed before the enemy becomes aware of its beginning.

Advance by Infiltration.—As the Drill Regulations indicate, this method of advance belongs properly to a situation in which the advance by rushes cannot be employed to advantage. It is a situation in which the advancing unit finds itself under long range fire whose source it cannot discover, hence cannot of course subdue. There is no merit therefore in attempting

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to advance by rushes since the employment of any part of the rifles for firing would be without purpose. The solution of the problem lies in getting promptly forward to some point from which the source of the hostile fire may be discovered and successfully engaged. Obviously, the sensible method of doing this is by breaking the skirmish line up into small fractions and permitting these small groups to advance under such cover as each may find. It is equally obvious that some arrangement must be made whereby control of these scattered groups may be regained at some point in the advance. This is arranged for in advance by designating some position or feature of the terrain in front upon which these groups are to reform. This is done by the leader of the line who points out the position to the squad leaders who, in turn, point it out to the men of their respective squads, and give such directions for the advance of the squad as their judgment dictates. Having arrived at the designated position, if the source of the hostile fire remains undiscoverable, another similar movement by infiltration would be ordered.

Training.—The formations and movements which we have discussed constitute the sum total of the movements and formations included in Extended Order Drill. As we have said in the beginning, they are simple and present little difficulty to men who are otherwise well trained and disciplined. However, unless the elementary training of the men has been thorough and careful, these simple formations and

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movements will give rise to infinite confusion and will inevitably result in loss of control even in drill. What will happen under battle conditions, when control is difficult even with the best of troops, is not hard to imagine.

This elementary training must be done in large part in the squad where particular attention may be given to the training of the individual soldier.

As has been pointed out, one of the first things to be indelibly impressed upon him is the necessity for following his leader, and conforming to his leader's actions and movements no matter what may happen.

Instant deployment comes next in importance. The squad must be trained to deploy, on the run, every man in his proper place, and with his proper interval, without hesitation or confusion.

The intelligent use of cover must be taught. The soldier must not only be taught how to utilize the accidents of nature to his advantage, but he must be made to understand that sudden and rapid advance is the best sort of protection in moving from cover to cover. He must be taught that, while he should ordinarily seek cover as much as possible, he should not do so if it interferes with the proper advance of his squad. In other words, he should not drop behind his squad, run ahead of it, or dodge from side to side to seek cover during an advance of his squad.

In the training for rushing, particular stress should be laid on the necessity of preparing for the rush with as little movement as possible. The tendency is

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to raise the head, to raise the rifle, get up on an elbow or on one knee, any one of which movements will be a plain advertisement of the rush to an alert enemy.

In halting, the tendency is to stop, drop to the knees, then lie down. The proper movement is exactly that of a football player throwing himself on the ball.

A man who fails to get off with his squad in a rush should remain and move forward with a later squad. If he falls behind in the advance of his squad, he should throw himself to the ground when his squad does so. Any movement on his part after his squad has gone down only serves to locate the squad for the enemy.

Sprinting and sprinting starts, from the standing, kneeling and prone positions are excellent training for this work. This and the individual training in rushing should be continued until every man of the squad acts without hesitation or delay.

Having trained the men individually, the squad leader should train it collectively, insisting on prompt passage of the word to suspend firing, prompt action in suspending fire, prompt preparation for the rush, and instantaneous action at the command *Up*.

The success of the rush depends largely upon the prompt reopening of accurate fire by the squad on completion of the rush. This means prompt and accurate sight-setting and requires special attention in training.

Battle Training.—What we have thus far discussed includes little but the mechanism of extended order drill. The test of what we have discussed comes in

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combat training and that can only be done intelligently on varied ground where men, non-commissioned officers and officers alike, are given an opportunity to make practical application of their instruction on the ground.

The line of demarcation between extended order drill and battle training is not always distinct. Much of battle training, such as reinforcing and re-squadding the firing line, supply and distribution of ammunition, leap-frogging the firing line, organizing for a charge and re-organizing after a charge may be reduced to a drill in which the principles are demonstrated and practiced.

Extended order drill is the primary class in the training for battle. Upon the thoroughness with which the lessons of extended order drill are learned depends the success of the platoon in battle. Time and energy spent in the little details of this training pay for themselves over and over every time the platoon goes into an engagement.

SYNOPSIS OF TALK

Elements of battle training; Physical drill; Close order drill and the ceremonies; Elasticity and simplicity; Why; Instinctive movements; Functions of extended order drill; Following the leader; Training of the squad; Training of the platoon; Squad and section leaders; The interval; Approach formations; Advance by rushes; Advance by infiltration; Training; Battle Training.

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MILITARY COURTESY

The subject of military courtesy is one of the utmost importance—not of itself alone, but on account of its influence on the spirit, discipline, morale and everything else worth while in an army. It is a subject little understood—not at all outside of military circles, and not as much or as well as it should be in the army itself. Too many concern themselves only with the outward forms of military courtesy and fail utterly to recognize the spirit back of the forms and which merely finds expression in the forms. *And it is the spirit alone that counts.*

The Salute.—Shorn of the proper spirit, it amounts to nothing. It may even be used to express mockery, as was the case when the mob derisively saluted Christ on the Cross. Supported by the proper spirit, it is a salutation indicative of comradeship and equality and expressive of respect and mutual confidence. Many pretend to see in it an act of humiliation, a subservience of one honorable man to another, a ceremony out of place in an honorable calling among honorable men. Those who see in the salute any such significance have never known the feeling of pride with which military men exchange this greeting.

The physical act of saluting is expressive of anything but humiliation. The chin is raised and each man looks the other straight in the eye. There can be no question of humiliation between men who greet each other in such a manner.

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The spirit of the salute and of the other forms of military courtesy is emphasized in the beginning of this talk, for the reason that it is important for all of you to get the proper conception of military courtesy from the start. It makes all the difference in the world in the practice of the forms; it makes every possible difference in the results you will have in your work of inculcating discipline and morale in those whom you may some day have occasion to train.

Compared to Civil Courtesies.—Nor does military courtesy differ in any essential from the similar practices in civil life. Here, we salute acquaintances by touching the hat. We bow to ladies. We stand in the presence of our elders. We take off our hats indoors and in the presence of ladies. We make frequent use of the word "Sir" in polite conversation.

Why do we do these things? Because they make social intercourse more pleasant. They indicate gentle breeding. They distinguish between the gentleman and the boor. Courteous habits in civil life are even an asset in business. People will not do business, if possible to avoid it, with an uncivil or discourteous man. No matter how competent a man may be, no one wants him around if he is boorish, uncivil—a grouch.

In military life, such courtesy is even more necessary than in civil life, for the reason that the military establishment is made up of many units which very much resemble big families. Men of necessity live a close community life. Their work keeps them together the greater part of the day. Even in their hours off

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duty they are in more or less close contact with each other. There is no such thing as escaping each other at any time. Now, in civil life, if you do like a man for any reason, you can always manage in some way to avoid him. But in military life it is different. You cannot pick and choose your companions. You march, eat, sleep and literally live beside a neighbor who is assigned to his place just as you are assigned to yours. It requires even more than ordinary forbearance and common courtesy to make life worth living under such circumstances.

Again, military life in reality is not at all what is pictured in descriptive literature. To begin with, it is hard work. It consists in large part of a succession of more or less unpleasant tasks. Especially is this true in campaign, where men work under a constant strain and must either drive themselves or be driven by those over them. Orders, often of a disagreeable character, must be given and received, and all the while everything must work with the smoothness and precision of oiled machinery. There can be no kicking, no talking back, no grouching. Military courtesy is nothing more than the oil which keeps the military machine operating as it should.

Nevertheless, you will find that you will be frequently confronted by the question, in one form or another, "What's the use?" It is the question which the youngster just entering the service will be sure to have tucked away in the back of his head, even though he does not voice it. It is a question which you must

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answer for him, one way or another—a question which you should find a way of answering shortly and satisfactorily if you want to start him off in his military career in the proper way and in the proper spirit. You can do much toward answering his unvoiced questions by frank, straightforward talks such as this, but you can do more, and do it better, by the spirit and manner in which you practice military courtesy.

The Spirit of Military Courtesy.—What is this spirit that lies at the root of military courtesy. It has been indicated to be a spirit of comradeship and equality expressing mutual respect and confidence. Let us inquire a little further into the matter and seek some evidence in support of this statement.

The history of the military salute, to which we will again refer for example, furnishes a very definite clue to the spirit which underlies all of the forms of military courtesy.

In the days of chivalry, following on the heels of the dark age of civilization, the Knights, who represented the flower of the manhood of that day, and other free men of Europe were the only men permitted to carry weapons. They lived in a troublous period when men held themselves in constant readiness for defense. On meeting one another, armed men gave evidence of their intentions by their actions. If their intentions were friendly, on approaching each other, they raised the right hand—the fighting hand—to show that it was empty of weapons, thus indicating in a definite and practical way the friendliness or peaceableness of their

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intentions. This little ceremony only took place between fighting men—equals. This act of raising the right hand gradually grew into a salutation among friends—and equals. It has been retained in the military service as the form of salutation among military men—fighting men, equals in a great and honorable calling—by which they recognize each other.

Briefly, it is the sign-manual of the fraternity of fighting men, a fraternity which recognizes all authority as coming from one source—The Country.

Attention.—Let us inquire briefly into one other form of military courtesy—standing at *attention.* Why should a soldier stand at *attention* in the presence of an officer; why should one officer stand at *attention* in the presence of another officer, his senior? Does either the soldier or the officer stand at *attention* as a mark of inferiority? No. The soldier stands at *attention* in the presence of the officer because the latter represents the authority of their common superior—the Government of the Country. The officer stands at *attention* before his senior because the latter represents that same authority in a higher degree. The officer is the man who may some day lead the soldier in action and give him orders which may mean death to him, orders upon which victory or defeat may depend, upon which the safety of the nation may hang.

The position of *attention* which the soldier assumes indicates physical and mental preparedness for instant action. It is as though the soldier had said, "On the job, sir!" It indicates that he is ready to jump to

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the execution of any order he may receive. Furthermore, it indicates complete confidence in the wisdom and judgment of the one who gives the order and a pride and willingness in playing the part assigned him.

When all of this is explained to the new soldier, and when he sees military courtesy practiced about him in the proper spirit, he will quickly come to recognize the place which it occupies in his new career and will lend himself to it with increasing pride.

You should never forget for a moment that everything depends upon the example you set in this connection. If you are slovenly or careless in your observance of the forms of military courtesy, you may expect the same thing in your men. If you are pompous and unreasonable with your men in this connection, you need never expect them to have the proper spirit.

Regulations Governing Military Courtesy.—The rules governing military courtesy are few and simple. The forms are easily learned, and practice may be depended upon to produce the smartness and precision which marks well-trained troops. Strict conformity to the rules is essential.

The Salute with the Hand.—The salute with the hand is a simple movement, capable of being made in a very smart and soldierly fashion, capable also of being made in slovenly and awkward fashion. To avoid the latter, it is necessary to practice the salute exactly as prescribed.

1. Assume the position of the soldier (*Attention*).

2. Face the officer to be saluted and look him squarely in the eye, chin a little up.

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3. When at the proper distance—six paces—raise the right hand smartly until the tip of the forefinger touches the lower part of the headdress or the forehead just above the right eye, thumb and fingers extended and joined, palm of the hand to the left, forearm inclined at an angle of about 45 degrees, hand and wrist straight.

4. Continue to look the officer squarely in the eye and keep the hand at the position of *salute* until he acknowledges the salute or has passed.

5. Then drop the hand smartly to the side.

If the soldier is armed with the rifle or saber he will render the *rifle* or *saber salute*, as the case may be.

The Rifle Salute.—1. Assume the position of the soldier.

2. Bring the rifle to the *right shoulder arms*, if not already there.

3. Face the officer saluted and look him squarely in the eye.

4. When at the proper distance—six paces—carry the left hand smartly to the small of the stock, forearm horizontal, palm of the hand down, thumb and fingers extended and joined, forefinger touching the end of the cocking piece.

5. Continue to look the officer squarely in the eye and keep the hand at the position of *salute* until he acknowledges the salute or has passed.

6. Then drop the hand smartly to the side.

The *rifle salute* may also be rendered with the piece at the order or trail arms.

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1. Assume the position of the soldier, piece at the order or trail arms.

2. Face the officer saluted and look him squarely in the eye.

3. When at the proper distance—six paces—carry the left hand smartly to the left side, palm of the hand down, thumb and fingers extended and joined forefinger against the piece near the muzzle.

4. Continue to look the officer squarely in the eye and keep the hand at the position of salute until he acknowledges the salute or has passed.

5. Then drop the hand smartly to the side.

The Saber Salute.—1. Assume the position of the soldier, saber at the *order saber.*

2. Face the officer saluted and look him squarely in the eye.

3. When at the proper distance—six paces—raise and carry the saber to the front, base of the hilt as high as the chin and six inches in front of the neck, edge to the left, point six inches farther to the front than the hilt, thumb extended on the left of the grip, all fingers grasping the grip.

4. Continue to look the officer squarely in the eye and keep the saber at the position of *salute* until he acknowledges the salute or has passed.

5. Then lower the saber, point in prolongation of the right foot and near the ground, edge to the left, hand by the side, thumb on left of grip, arm extended. Return to the *order saber.*

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The Saber Salute Mounted.—1. Assume the position of a soldier, saber at the *carry saber*.

2. Look the officer saluted squarely in the eye.

3. When at the proper distance—six paces—carry the saber to the front, with the arm half extended until the thumb is about six inches in front of the chin, the blade vertical, guard to the left, all four fingers grasping the grip, the thumb extending along the back of the groove, the fingers pressing the back of the grip against the heel of the hand.

4. Continue to look the officer squarely in the eye and keep the saber at the position of *salute* until he acknowledges the salute or has passed.

5. Then bring the saber down with the blade against the hollow of the right shoulder, guard to the front, right hand at the hip, the third and fourth finger on the back of the grip and the elbow back.

NOTE: The officer giving the talk should demonstrate the proper methods of rendering the hand, rifle and saber salutes. Great care should be taken that these demonstrations are technically correct.

Officers and soldiers, not in a military formation, nor at drill, work, games, or mess, exchange salutes on every occasion of meeting, passing near or being addressed, the soldier or the officer junior in rank saluting first.

Saluting Distance.—One of the questions that the new soldier will invariably ask is, "What is saluting distance?" Saluting distance is that distance within which recognition is easy—that distance within

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which friends in civil life ordinarily recognize and greet one another. In general it does not exceed thirty paces.

Calling Attention.—When an officer enters a room or a locality where soldiers are congregated, the command *Attention* is given by the one who first sees him. All rise, uncover if indoors, and remain standing at *Attention* until the officer leaves the room or locality, or directs otherwise. An exception to this rule is that soldiers at meals stop eating and remain seated at *Attention* when an officer enters the dining room.

You will find that this matter of calling *attention* is one of the most difficult things to teach the young soldier. He is timid. He is afraid that he will do something wrong. He is afraid to open his mouth and give the command *Attention* in a tone of voice that can be heard and understood by all in the vicinity. This is one of the things that comes with training, as the soldier gains confidence in himself. It is the duty of every officer and noncommissioned officer to instruct and counsel the young soldier in this matter. But, whatever you do, do not let this instruction and counsel take the form of "bawling out" the soldier. That used to be the old idea of training soldiers, "putting the fear of God into them" as the saying was. It is not so nowadays. It has been found that gentler methods produce better results.

NOTE: When this talk is given to soldiers new in the service, omit this paragraph and substitute the following:

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"You will find that this is one of the most difficult things that you will have to do in carrying out the requirements of military courtesy. You will be timid. You will be afraid that you may do something wrong. You are afraid to open your mouth and give the command *Attention* so that all men in the vicinity may hear and understand it. Now the thing for you to do is to overcome this timidity. Practice giving the command *Attention* a few times each day. Open your mouth and shout it out. You will find that your voice is not going to hurt you. Suppose you do make a mistake now and then. The man who makes no mistakes gets nowhere. We learn by the mistakes we make. If you do make a mistake and an officer corrects you, don't get the idea that he is 'bawling you out.' He is not criticising you. He is merely trying to help you to learn the game. Take it in that spirit and you will come out all right. This instruction is merely teaching you 'good form.' A soldier untaught in this matter is at the same disadvantage as the uncultured man in civil life—the man who has never learned and practiced the forms of polite society."

A soldier, if seated, rises on the approach of an officer, faces towards him and stands at *attention*. He looks the officer squarely in the eye and salutes him. If standing, the soldier faces the officer and salutes. If the parties remain in the same place or in the immediate vicinity, the compliment need not be repeated. A soldier actually at work does not cease work to salute an officer unless he is addressed by the officer.

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Before addressing an officer, the soldier makes the prescribed salute with the weapon with which he is armed, or, if unarmed, with the right hand. He also makes the same salute after receiving a reply and before he leaves the presence of the officer.

When several officers in company are saluted, all entitled to the salute return it.

In public conveyances such as railway trains or street cars, and in public places such as theaters, honors and salutes may be omitted when palpably inappropriate or apt to disturb or annoy civilians present. A soldier driving a motor car does not salute if the car is in motion. If it is standing still, he renders the prescribed salute. A soldier driving a wagon always salutes unless he is having trouble with his team.

Soldiers at all times and in all situations pay the same compliments to all officers of the Army, Navy and Marine Corps, to volunteers and to officers of the National Guard, as they pay to officers of their own regiment, corps or arm of the service. Some soldiers get the idea that they only salute the officers of their own regiment. This is all wrong. They salute all officers.

Salutes and honors, as a rule, are not paid by troops actually engaged in drill, on the march, or in the field under campaign or simulated campaign conditions. Troops on the service of security pay no compliments whatever.

Sentinels on post, doing interior guard duty, con-

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form to the foregoing principles, but salute by presenting arms when armed with the rifle. They will not salute when it interferes with the proper performance of their duties.

These are the simple rules of individual military courtesy, the punctilious observance of which not only marks the soldier as an individual but reflects credit upon his company, regiment, brigade and division. In France, officers traveling in motor cars through the American training and billeting areas could tell when they passed out of certain division areas and into others by the manner in which the men saluted. It is safe to say that many lasting personal opinions as to the excellence of divisions were based on this alone.

These are the things that we have to teach our soldiers to do, and to do properly. These are the things that we must insist upon every one in the military service doing upon every appropriate occasion.

Common Errors.—Now I want to demonstrate to you some of the more common errors in saluting (Have assistant assume the position of attention. Have his hat pushed back on his head. Have him make the hand salute):

Here we have the soldier standing correctly. The error consists in pushing the hat way back on the head and trying to make a military salute with it in that position. See the position of his right arm when he tried to touch the brim of the hat with the forefinger. This is incorrect. When he brings his arm to the correct position his hand comes under the brim of the

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hat, which is also incorrect. You see how this has destroyed the smartness of the salute. We now place the hat on the head properly and see how easily and naturally the salute is made.

(Have assistant place pipe or cigarette in mouth and salute.)

Our second demonstration is the soldier saluting his officer while he has a pipe in his mouth. I want you to note the appearance of this. I want you to see the error that is being made. In polite society in civil life the well-bred man removes his cigar or pipe in the presence of ladies or when he tips his hat to them. This is done through courtesy and respect for them. The same principle governs the salute in the Army.

(Have assistant stand with his left hand in his breeches pocket and salute.)

Our next demonstration is the soldier saluting his officer while his left hand remains in his pocket. You see how this little error destroys the whole effect of the position of attention—how it ruins the whole salute.

(Have assistant stand and salute):

1. With feet spread apart:
2. On one leg with other foot on a chair round.
3. Leaning against the wall in a slouchy manner.

This demonstration shows some of the common errors that destroy the whole effect of the military salute. I want you to see how these incorrect positions of the body take away all military appearance from the soldier.

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(Have assistant salute incorrectly:)

1. Folding up the hand and touching the head dress only with the index finger.

2. Bringing up the hand to a position several inches in front of the brim of the hat.

3. Bringing up the hand with a jerk and snapping it down again quickly without waiting for the salute to be returned.

4. Making several motions with the arm in bringing it down from the position of salute to the side.

Your attention is called to all the errors that have been committed in this series. You have seen how they all detract from the appearance of the military salute. How they take all of the military precision and snap out of it.

(Have assistant stand about in a slovenly attitude with coat unbuttoned and salute.)

Here we have the unpardonable error of military courtesy—the man who attempts to salute his officer in a slovenly, sloppy manner while his coat is unbuttoned. He has none of the appearances of a soldier. He has no self-pride and nothing to make him proud of himself. His officer is ashamed of him—ashamed of the salute that he renders. Show me the man that does this and I'll show you a soldier who is worthless and without self-respect.

I hope you will remember this demonstration. I hope you will avoid making these errors that have been illustrated here. You have seen the appearance of them. You have seen how they destroy the whole

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effect of the military salute. I hope you have learned the lesson that I have tried to bring home to you.

Don'ts.—Here are a few don'ts on military saluting that you should put into practice at all times.

1. Don't bow when you salute. Hold your head up. Look the person saluted squarely in the eye.

2. Don't salute at a distance of one or two paces. Salute at six paces.

3. Don't drop the hand until the salute has been returned or the officer has passed.

4. Don't bring the hand down with several motions. Bring it down from the head to its natural position in one quick, smart motion without striking the thigh.

5. Don't fail to salute because you happen to be in an automobile, or because the officer is in an automobile or other vehicle. If you are driving a machine, do not salute when it is in motion. If it is standing still, salute.

6. Don't report and salute at the same time. Complete the salute first and then make the report.

7. Don't slouch while in uniform. Keep your head up and your shoulders back. Walk like a real soldier.

8. Don't come to the position of *attention* leisurely. Take it with a snap.

9. Don't seek excuses for not saluting your officers. If there is any doubt in your mind, salute. If you have made an error, you will at least get the credit for being courteous.

10. Practice saluting every day. It is practice that makes perfect and we want you to be perfect

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soldiers. They are the kind that make good when the time comes.

Military Courtesy in Conversation.—The rules are few and simple. The soldier addresses his officers in the third person and uses the word "sir" wherever it would be appropriate to use it in ordinary conversation in civil life. When he answers a question in the affirmative, it is "Yes, sir;" when in the negative, it is "No, sir,"—not plain "yes" or "no," or the more common "naw."

When the conversation is in the nature of a report the word "sir" precedes the report. Examples of these forms are:

"Sir, will the captain direct me to the orderly room?"

"Sir, I am unable to find Corporal Smith."

"Yes, sir; guard mount is at one-thirty."

When the soldier approaches the officer for the purpose of addressing him, he halts at a suitable distance from the officer, comes to *attention*, salutes and proceeds. At the end of the conversation he again salutes, remains at the *salute* until it is acknowledged, then faces about and departs.

When a soldier is spoken to by an officer, while in ranks in a military formation, he assumes the position of *attention*. He does not salute. For example, Private Smith is in ranks. His platoon is standing *at ease*. The battalion commander approaches and halts in front of Smith. What does Smith do? Smith snaps to *attention*. The major says, "What is your name?"

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"Private John Smith, sir." "What is your organization?" "Company B, 29th Infantry, sir." "Do you remember me?" "Yes, sir; I remember the major as a captain in the 12th Infantry." When the major leaves, Private Smith resumes the position of *at ease*. He does not salute.

Now if Smith had not been in ranks, he would have snapped to *attention* and saluted when the major addressed him. He would have saluted again when the major left him.

The theory of this custom is that, when a man is in ranks, he is commanded by someone who salutes and carries out the requirements of military courtesy for the command; when he is alone, he does this for himself.

A mounted soldier always dismounts before addressing an officer who is not mounted. This same rule applies to a junior officer when he addresses a senior.

Salutes by Bodies of Troops.—The rules governing the requirements of military courtesy between commanders of troops are also few and simple. Yet you will find junior officers and noncommissioned officers who do not know just exactly what to do when in command.

A few illustrations will make clear these rules.

1. A platoon commanded by a noncommissioned officer is formed, standing *at ease* on the platoon parade. An officer approaches or passes in front of the platoon. The noncommissioned officer, if armed with the rifle, comes to the *Right shoulder arms* and gives the command,

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1. *Platoon*, 2. ATTENTION, faces the officer, and makes the rifle salute. If he is unarmed, he salutes with the hand. This same rule obtains when the platoon is marching.

2. The same situation as in (1) except that the officer passes in rear of the platoon. The noncommissioned officer comes to the right shoulder arms and gives the command, 1. *Platoon*, 2. ATTENTION, faces in the same direction as the men face but does not salute.

3. A platoon commanded by an officer is formed, standing at ease, on the platoon parade. An officer of equal or junior rank approaches or passes in front of the platoon. The platoon remains *at ease*; the officers only salute. This same rule holds when the platoon is marching.

4. The same situation as in (3). An officer senior to the platoon commander approaches or passes in front of the platoon. The platoon commander gives the command, 1. *Platoon*, 2. ATTENTION, and the officers exchange salutes. This rule holds if the platoon is marching.

5. Same situation as in (3). Senior officer passes in rear of the platoon. The platoon commander gives the command, 1. *Platoon*, 2. ATTENTION, faces in the same direction as the men face, but does not salute.

The Salute to the Flag.—The requirements of military courtesy with respect to the flag and the National Anthem are also very simple. The rule is "Salute all colors and standards, not cased." What do you understand by colors and standards not cased?

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An officer inspected a rooky sentinel on post one night. The sentinel "sounded off" his General Orders without missing a comma. When he came to the paragraph—"To salute all officers, colors and standards, not cased"—the officer asked him, "What do you understand by colors and standards, not cased?" The sentinel pondered for a moment, then replied, "Why, them's second lieutenants."

You will find many others who have no more definite idea of what is meant.

The national and regimental flags belonging to a dismounted organization are called Colors. Those belonging to a mounted organization are called Standards. They are protected from the weather by a waterproof cover. When this is on them, they are "cased," and are not saluted because they are not visible.

A few situations will illustrate the *Salute to the Color:*

1. A platoon is standing *at ease* on the platoon parade, or marching at *route step* or *at ease*. The colors are carried past, cased. No attention is paid to them.

2. The same situation with the colors uncased and showing. The platoon commander gives the command, 1. *Platoon*, 2, ATTENTION, faces the colors and salutes with the rifle or hand salute.

3. Soldiers out of ranks and in uniform, covered or uncovered, salute the uncased colors and standards whenever they pass them. If they are armed with the rifle or saber (drawn), they render the rifle or saber sal-

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ute. If they are unarmed, they render the hand salute.

4. Soldiers in civilian clothes, when passing the uncased colors, remove the headdress with the right hand and hold it opposite the left shoulder. If they are uncovered, they make the hand salute.

There's nothing difficult about all of this. These rules are simple and easy to remember. Try to understand the reason for the rules, then bear in mind the spirit back of the little courtesy you are rendering, and it will all come with surprising ease and naturalness.

SYNOPSIS OF TALK

Importance of subject; The salute as an example; Compared to civil courtesies; The spirit of military courtesy; The history of the salute; Attention; Regulations governing military courtesy; The salute with the hand; How rendered; The rifle salute; The saber salute; The saber salute mounted; Illustrations; Saluting distance; Calling attention; Soldiers seated; Addressing an officer; In public places or conveyances; Salutes to all officers; Troops on the march, etc.; Sentinels on post; Common errors; Don'ts; Military courtesy in conversation; Salutes by bodies of troops; The salute to the flag; In civilian clothes.

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MILITARY DISCIPLINE

General Discussion.—The subject of military discipline, like that of military courtesy, is one but little understood outside of the Army and, it must be confessed, is not always viewed in its proper light even within professedly military circles.

The trouble seems to be that people in general either do not or will not grasp the proper meaning of what we call military discipline, its nature, its purpose, its necessity and, finally and most important of all, its spirit.

Living within an atmosphere of strict discipline from the cradle to the grave, most people fail utterly in grasping its primary principles. As a matter of fact the atmosphere of a rigid discipline surrounds us all every moment of our lives. We can never escape it for a moment. Practically every experience through which we acquire knowledge is in the nature of a disciplinary correction inflicted upon us by some agency of nature or of civilization. Everything with which we come in contact through life, even inanimate objects, stands ready to enforce on us certain immutable laws and to administer disciplinary correction on us when we violate those laws. As children, we were disciplined by the fire which burned us if we were careless with it. Our stomachs discipline us if we misuse them. And so on down through our daily lives, laws and regulations await us at every step and disciplinary correction lurks at every unwary turn.

Outside of military circles, the average man recog-

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nizes fully the necessity for discipline—in his family, in his business, in his relations with his fellow-man—because he is familiar with the conditions which surround the raising of a family, or which must govern the relations of men in civilized intercourse. On the other hand, he is not familiar with conditions in the military service, hence does not understand the reasons for its rules and regulations and, in consequence, is more than likely to view them with intolerance.

Even within military circles, among men who should be familiar with the reason and spirit of military regulations and military procedure, many make the serious mistake of confusing the exercise of authority with the maintaining of discipline. In brief, they appear to think that discipline must be maintained solely as to the end of upholding their authority. And again, both outside and inside of military circles, many fail to understand the spirit upon which true military discipline is based—must be based—and failing in this, they fail altogether, for the simple reason that they can understand the principle of military discipline only when they appreciate the spirit underlying its spirit.

Without the proper spirit there can be no such thing as discipline in anything. We may have the outward semblance—the symptoms, so to speak—but that is all. We may have obedience, compliance with regulations, even cooperation of a kind, as long as the fear of disciplinary correction is present, but these symptoms last only while the one in authority is present. We have only the discipline of school children who begin to

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throw things and to misbehave the moment the teacher's back is turned. It is the discipline of the driver.

The discipline upon which a successful army must be built is of a different kind, a kind that endures when every semblance of authority has vanished, when the leader has fallen, when the members of the team are dropping out one by one, and when the only driving power that remains is the strong and unconquerable spirit of the team, which gives us at once the working definition of military discipline—The Spirit of the Team.

A great many able writers have attempted at one time or another to define military discipline. In general, their definitions have not been satisfactory. The reason is that they have contented themselves with trying to describe the outward symptoms of discipline, the evidences of discipline, together with methods for producing these symptoms, and have inquired no farther. They have merely described the outward effects of discipline as they have observed them and the methods by which these effects were apparently obtained, but they have never taken the trouble to investigate the spirit, the mental attitude which lies behind these symptoms and makes them possible.

For example, one writer defined military discipline as being "The art of inspiring soldiers with more fear of their officers than they have for the enemy." The man who wrote that definition knew nothing of the spirit that carries men into the face of death in response to a command or, in the absence of a command, in response to a sense of duty. His idea of disci-

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pline was symbolized in a club. He looked on the evidence of discipline—the unhesitating performance of duty—as resulting wholly from fear of punishment.

Fear of punishment undoubtedly did play its part in the days when the great mass of fighting men was composed of ignorant peasantry and even of slaves herded into battle by hereditary chieftains, but it is not so today. It may be remarked that it has been never so in this country and never will be.

Fear had no part in the spirit that held the barefooted, half-starved Continental soldiers in their freezing huts at Valley Forge. Fear was no part of the spirit that inspired the tattered veterans of Lee's army to follow him to the last bitter hour of surrender. Fear did not enter into the spirit that drove American soldiers through the tangled fastnesses of the Argonne. The American soldier has never known fear of punishment. He has always fought with the spirit of the free man, because he believes in his cause enough to fight for it.

Finally, if it is fear of their officers that makes soldiers fight, what is it that makes the officers fight? They are just ordinary men, like the rest. Of whom or of what are they afraid? It is true that they are afraid, just as every man is afraid when he believes himself in personal danger.

Marshal Ney of France once said, "The one who says that he has never known fear is a compound liar." Many others of the world's most gallant soldiers have testified to the same effect.

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If the soldier is afraid of his officers and if they are themselves afraid, why do they not all run away? What is it that keeps them up to their work?

Strange as it may seem, the answer is that they are all afraid, terribly afraid—of each other. A veteran general officer summed up the true spirit of the soldier, from the highest general down to the last private, when he said, "The fear of being despised by his comrades as a coward is in the end greater than his fear of death" —again, from another point of view, The Spirit of the Team.

The Necessity for Discipline.—The question is frequently asked, "Why do we need discipline in the Army?" The answer is that there can be no orderly effort of any kind, in the Army or out of it, without teamwork, which is merely the ultimate expression of disciplined organization. We have ample witness of this in every phase of life. There is no business which is not conducted under certain rules and regulations, regulations which govern all, employers and employes alike, in all of their comings and doings and goings.

The life of a factory, for example, is centered about a certain amount of machinery. All effort is organized around this machinery. Each part is tended by someone who feeds it, tends it, operates it. When the machinery is in operation, everyone must be in his proper place, looking out for his particular task, else the whole scheme of manufacture is upset. To insure against anything of this kind, we must have rules governing the conduct of the operators. Infraction of

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any of these rules leads inevitably to trouble with the manufacturing scheme and brings in its train some kind of correction for the guilty one—disciplinary punishment.

Again, let us take the discipline of the football team for an example. Every play is worked out in its smallest detail. Each player has a certain part to play. When the signal is given, each player does exactly what he has been told to do. If one of them fails, the play goes to pieces. If the failure is not excusable, the player goes off the field—disciplinary punishment, punishment for not living up to the spirit of teamwork.

So it is with the soldier. He knows that he is a part of a machine that will work smoothly if every man obeys orders, plays his part. He sees the machine work every day of his life. He obeys orders. He sees his comrades obeying orders. He has every confidence in them. He knows what they can do and he knows that they will always do the right thing; that they will keep on playing the game according to the rules. To him an order is like a signal to the football player. Neither stops to see what his teammates are going to do. Each knows that the other members of the team are going to play their parts, just as he is playing his part. Each knows just how the play is going to work out. Each knows that he is going to be backed up and, knowing this, he puts his best effort into what he is doing. With each repetition of the play, in practice or in the game, his confidence in his team-

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mates grows until, in the end, he feels as sure of them as he does of himself. This is discipline, the spirit of teamwork, the spirit that keeps a man in line when his brain is reeling, which sends him smashing into the play with his last ounce of strength and which lifts him from the ground at the sound of the whistle to stagger back into his place.

Military Operations.—Military operations are like any other business, any other game. They are conducted in accordance with certain rules and regulations. Teamwork in carrying out these rules and regulations is more necessary in military operations than in any other business or game. If anything goes wrong in a military operation, the mistake must be paid for in human life. In any other business or in any other game, the price may be a piece of broken machinery, a spoiled article, a lost game—all reparable or, if not entirely reparable, of no vital importance—but in the military business, the commodity, the most valuable on earth, is gone forever.

In the next place, the nature of military employment makes system and perfect order an absolute necessity. Large numbers of men must be assembled, cared for and moved about in limited spaces. Each unit, each man, must play the game strictly according to rules, else confusion and disorder is bound to result. Regulations must provide for everything in detail, and they must be complied with to the letter if we are to expect teamwork under such conditions. Discipline which responds unhesitatingly to orders and regula-

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tions, whatever be the circumstances, is the only means of insuring such teamwork.

Finally, military operations, big or little, always carry with them a certain strain, mental and physical, for everyone concerned, from the commander-in-chief down to the last private in the rear rank. The more important the operation, the more critical the situation, the greater is the strain on all. The temptation to lag behind, to shirk, to jump the beaten path of duty grows with the strain, and unless the spirit of teamwork —discipline—is strong enough within each man to keep him in his place, doing his full duty, the handwriting on the wall will spell but one word—disaster.

An Historic Example.—At the height of the late war, the Allies were faced with the military collapse of Russia, German propaganda had undermined the discipline of the great Russian army. The Soldier's Congress passed a resolution: "The men will not in future salute officers." This was apparently a small incident in the big events which were then transpiring. Just what did it mean? Briefly, it meant that the team no longer had a captain and that the spirit of teamwork was dead. It led to the news which flashed over the wires a few days later: "The troops have left their trenches; the artillery is being sold; officers are serving as cooks and orderlies." Discipline had vanished and the army which had helped to save the Allies in 1914 and 1915 had disintegrated into a mob. You are familiar with the results. The disappearance of discipline from its army has cost Russia millions

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of her men, women and children, most of her institutions, and billions of dollars.

On the other hand, let us consider one example of what discipline may accomplish in a critical situation. In the early days of the war, during the retreat from Mons, a battalion of the British Guards Division was holding an important bridge which was a pivotal point in the line. Much depended upon the holding of this bridge. It was a critical moment in the British retirement. The Germans had hurled division after division on this one battalion until it was all but wiped out. A scant thirty men remained in a shallow trench. A few yards to their front was a deep ditch which led to the German flank. This handful of men was being attacked by masses of Germans eager to take the bridge. Suddenly a British Tommie, a mere boy, leaped to his feet and shouted, "Guards will advance—Rush!" and what remained of the Guards rushed to what looked like certain death. They left their trench and followed that boy. Fifteen yards away they dropped into the ditch leading to the German flank and opened a rapid fire into the rear of the attacking masses. The Germans wavered, then halted. Finally came the command to retreat, and the whole line began to fall back. A little later, reinforcements came up and the bridgehead was safe. The young Tommie was cited in orders and decorated. The commanding general asked, "Who gave the order to advance to that ditch?" Someone remembered that it was the 18-year-old bugler. The astonished

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officer exclaimed, "Good God, boy! How did you dare give such an order?" The boy replied, "It was the Guards, sir, and I knew they'd obey." He knew the team, and he knew he could depend on the spirit of that team.

It is such discipline which we must have to win battles—discipline which carries with it instant obedience, instant response to the will of the leader. There is no time for thought, no time to weigh conclusions. The order is given. It flashes to the brain of the soldier. Brain and muscles act instantly, without thought of the consequences.

How are we to cultivate this discipline, this spirit that responds unhesitatingly to command when shells are bursting overhead, when bullets are whistling about our ears, when your bunkie crumples up beside you and when you know that the next moment may bring yours? How? The answer is, by training.

What kind of training? Disciplinary training.

Disciplinary Training.—We have now learned something of the spirit of military discipline and some of the reasons why we must have it in its highest form in the military service. Let us see how we may go about building up this spirit of teamwork.

It is axiomatic in the Army that we attain discipline through the medium of certain drills and exercises which we call disciplinary drills, for the reason that training in such drills and exercises has been found to bring about teamwork, instant obedience to command, and harmonious, concerted effort—these drills and

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exercises which go to make up battle employment or which lead up to it, and the drill is in all respects similar to the team practice of a football team.

Among these disciplinary drills and exercises, the more important are physical drill, close order drill, and the ceremonies, and in order to understand the way in which each contributes to discipline, we will consider them briefly and separately.

Physical Drill.—Physical drill in general usually takes the form of certain exercises for the arms, legs and body. These exercises, known as calisthenics, are executed collectively by a group of men at certain words of command. The primary purpose of the work is, of course, to loosen up the muscles of the body, exercise them and develop them. It is in the manner in which this work is done that it contributes to discipline.

Let us visualize a calisthenic drill for a moment. A group of men, any number from half a dozen to several hundred, is extended at proper intervals, standing at attention in front of the instructor. A preparatory command—to raise the arms, straight to the front, to a horizontal position, palms down, for example—is given. At the proper interval, the command of execution, sharp, incisive, follows, and each pair of arms snaps to the front, into the exact position, at the same instant. Now that is what we see. What does it mean in the way of training?

In the first place, it means that each man in the group, while standing at attention, has had his attention rivetted on the instructor, on his every word, on

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his every move—in other words, it means absolute concentration of every faculty on the work in hand.

In the next place, it means that every man in the group has such perfect command over the muscles controlling his arms that he is able to make them do just what he wants them to do at the instant he wants them to do it—in other words, absolute coordination of mind and muscle. In each case it means that the man's eyes have been trained to observe, his ears to hear, his brain to transmit, and his muscles to act, together and instantly. Briefly, it means that these faculties—eyes, ears, brain and muscles—have been trained, disciplined, to instant response to the voice of command. As time goes on, with each repetition of these exercises, this coordination of eyes, ears, brain and muscles becomes more and more perfect. Response to the voice of command becomes more and more automatic until, in the end, it is, as we say, subconscious, that is, it reaches the point where the man responds to the voice of command without actually realizing that he is doing so—perfect teamwork.

Close Order Drill.—In close order drill the methods and the results are entirely similar.

Close order drill consists of certain movements by which bodies of troops are maneuvered from one formation to another and from one place to another. Involving as they do the orderly movements of bodies of troops, it is essential that these movements be executed with absolute order and precision. To this end, the execution of these movements is described in great

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detail in the Drill Regulations. Each individual, each group, must execute its prescribed part exactly as prescribed, else confusion will result. This means that each individual, each group, must be trained to do his part with the utmost precision in order that the whole may move smartly, instantly and smoothly at the word of command. In brief, each must be trained to move in a precise and orderly manner from one formation to another, how to stand, step off, march, halt, handle his rifle and do it smoothly and in concert with the rest of the group.

Included under the general head of close order drill are the School of the Soldier, the School of the Squad, the School of the Platoon and the School of the Company.

Training in close order begins with the individual, the recruit, in the School of the Soldier and progresses through that of the squad and platoon to that of the company. Beginning with the individual, in the School of the Soldier, we teach him the movements of feet and arms necessary to march, halt, and handle his rifle. We train him in all of these movements until he reaches the point where he does them smartly, automatically, in response to command. We then place him in a group, the squad, and train him to execute all these movements in concert with others. This small group is merged with other squads into the platoon, where other movements are learned and executed in the same manner. In the end, we have the large group executing movements smartly and with the smooth-

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ness of machinery. Individually, the members of the group respond instantly and subconsciously to the word of command, and the collective result is perfectly concerted action—teamwork, discipline.

The Ceremonies.—The ceremonies are another class of military exercises designed to promote discipline among troops. As you all know, they consist of certain formations and movements in which bodies of troops take part and in which they execute certain prescribed movements in concert at the word of command, very much as in the physical drill we have just considered. All ceremonies are accompanied by martial music at intervals, and the colors and standards are always present. For these ceremonies, the men are required to turn out in their best uniforms, with each article of uniform, arms and equipment, spick and span—ready for parade, as we say when speaking of anyone, who is smartly attired and properly groomed.

How does all this—the formations, the movements, the music, the colors and standards, the spick-and-spanness—contribute to discipline?

To begin with, it involves concert of action—teamwork, discipline—whether it be in standing like graven images in ranks, handling a thousand rifles like one, or marching like well-regulated machinery, all to its highest degree. Every man is on his mettle. Each organization is out to make a showing for itself. Each is keyed up to the highest point of concentration and response to the voice of command. In a sense, it is like the last signal practice before a big football game.

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In the next place, the whole setting—the smart uniforms, the music, the colors, the movements—is calculated to inspire the man taking part in a ceremony with pride in himself and in his profession, a pride which finds expression a perfect response to command—perfect teamwork.

Finally, we all know that we get a certain amount of pleasure out of doing anything in concert with others, whether it be joining in a chorus or taking part in a well-regulated cheer, or in any other get-together effort. The same thing obtains in a military ceremony. The company that goes through a ceremony without a break, that marches past the reviewing officer in perfect step, like a single man—that company goes back to its barracks or camp elated, proud of itself. On the other hand, the company that has been ragged in its movements, whose lines have broken in passing in review, or that has made a break of any kind—that company goes home silent and ashamed.

Mental Disciplinary Training.—Finally, and most important of all, there is one other aid in cultivating discipline. It is in the training of the mind. We have considered how the members of a football team respond to the signal for a play, how each plays his part and how these separate parts contribute to the success of the play as a whole. In the play, each player does his part without thought of what the rest are doing. That is because he has seen the play worked out—on a diagram first and later in practice. He understands the play as a whole. He knows how

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each part links up with all of the rest. In other words, his mind has been trained to understand the whole play, and in the training of the mind lies the surest, most direct means of reaching the kind and degree of team-work which we recognize as discipline. We may train a man to do a certain thing in a certain way. We may have him do it over and over again until he is letter perfect in its execution, but if he does not clearly understand why he does it in the prescribed way instead of some other way, if he does not know why he does it at all, what purpose it serves, how it links up with everything else—if he does not understand all these things thoroughly, his training amounts to little more than the physical training of his muscles. His brain, his mind, has not been benefited. It is just as though he had no mind at all. He might as well be an ape. In brief, any training which does not begin with the mind does not make use of the mind of the one under instruction, is nothing more than animal training and, as far as the attainment of disciplinary benefit is concerned, is just about as valuable and lasting.

Therefore, in all of our training, we should never forget that discipline is the main object we seek. We should never for a moment overlook the part that the mind plays in the inculcation of discipline. We should never fail to avail ourselves of its aid in short-cutting the road to proper training and discipline. We should always bear in mind that we may control a man's actions best, most surely, and most completely through the medium of a mind which understands and which responds because it understands.

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I have tried to tell you as clearly as lies within my power something of the spirit of discipline, the need for it and the means through which it may be attained. There remains one phase of discipline upon which we have touched only lightly and which, if not properly understood and properly handled, is capable of ruining all of our other efforts toward disciplinary training. I refer to:

Disciplinary Punishment.—We have seen that everything in life, animate or inanimate, has its own method of inflicting disciplinary punishment upon us when we violate the established rules of conduct. It must be so in everything. It must be so in the military establishment. Some of the disciplinary punishments to which we are subjected in life are harsh and painful. Some are not. In each case, the punishment is of a kind and degree that "fits the crime." In each case it is impersonal. If we eat a green apple, we have a stomach ache. It is not always a severe or a humiliating punishment, but it is enough to call our attention to the folly of eating green apples. It is entirely impersonal. We know that the apple was not laying for us in particular. It would have done the same thing to anyone else who ate it. We bear no personal feeling or resentment against that particular green apple or against green apples in general. All of which furnishes us with an excellent example of the spirit in which disciplinary correction should be administered and received.

Disciplinary correction should never be administered

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according to any fixed rule. No two cases of violation of regulations are ever identical. No two men ever violate a regulation in exactly the same way, in exactly the same spirit, or with exactly the same evil results. Disciplinary correction cannot, therefore, in justice be the same in any two cases.

It should, so to speak, fit not only the crime but the individual and the circumstances. What is punishment to one man is not punishment to another. What may correct one man may drive another to repeat his offense. A wise general rule to follow is this: Consider the violation of the regulation; consider the circumstances, the provocation, the temptation, the spirit; consider the man, his general conduct, general attitude, his personality, his make-up, then award punishment which will correct with the least possible humiliation.

Again, in inflicting discipline, emulate the green apple. Be impersonal. Make it clear that you are dealing judicially with a violation of a regulation, not personally with an affront to your own authority. Keep yourself and your authority in the background. Remember that you are clothed with authority only as an agent of the military government. Confine your efforts to guarding the authority of the military establishment, and your own authority will take care of itself.

As to the manner in which disciplinary correction should be received, let us turn for a last time to the green apple. As we have said, we cherish no resentment against the particular apple which made us ill, or

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against green apples in general. Our chief reflection was that we had violated a rule of nature and had been punished for doing so, followed by a resolution to do so no more.

That is the identical spirit in which we should accept disciplinary correction in the military service. Because it becomes the duty of a senior, acting under the common regulations, to administer a disciplinary correction to any one of us, we are not justified in cherishing resentment against that particular senior or against seniors in general. What they do, they do in obedience to regulations, because they are charged with certain responsibilities which they cannot shirk without, in their turn, violating the regulations which stand over and above us all.

They are playing their part in the military game, doing their prescribed part in the promotion of teamwork and in the spirit of teamwork. They are the agents of the discipline which brings success to the team.

SYNOPSIS OF THE TALK

General discussion; The atmosphere of discipline; Attempted definitions of discipline; Fear of punishment; Necessity for discipline; The factory; The football team; Military operations; Perfect order; The price of a mistake; The strain; Historic examples; Disciplinary training; Physical drill; Concentration; Coordination; Close order drill; The ceremonies; Teamwork; Pride; Inspiration; Mental disciplinary training; Disciplinary punishment; The spirit in administering and receiving disciplinary punishment.

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THE CARE OF ARMS AND EQUIPMENT

The individual equipment worn by the bulk of the army, and the equipment with which you will in your work be most concerned, is that of the foot-soldier—the infantryman. For this reason this talk will be limited to the subject of the arms and equipment of the infantry arm of the service.

The matter of arms and equipment is of the greatest importance to the soldier of every branch of the service because arms and equipment are the tools of the fighting man's trade. They are to the soldier exactly what the carpenter's kit is to the carpenter, the plumber's kit to the plumber, the surgeon's instruments to the surgeon. You all know the care with which either the carpenter, the plumber, the surgeon or any other skilled workman looks to the condition of his tools. His first thought always is that they be kept in first class condition, for each knows that he cannot do good work unless his tools are in perfect shape. It is the same with the soldier. He cannot do effective work as a fighting man unless his tools are in A-1 condition.

In the case of the foot-soldier, this is of the utmost importance from whatever point of view you may choose, because not only his fighting efficiency but his health and his comfort depend upon the condition of his arms and his equipment.

The infantryman is an independent fighting man—more so, perhaps, than any other. On his person he carries everything he requires with which to live and

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do business—to fight, eat, sleep, and care for himself when wounded. Literally, he carries his arsenal, his home and his housekeeping arrangements on his person. He is always in a position to eat, sleep, or fight at a moment's notice. His rifle is on his shoulder, his bayonet at hand, his ammunition about his waist; on his back, in the pack, are his tent, his blankets, his extra clothing, his food and toilet articles; at his belt are his canteen of water and his first-aid packet. He lacks nothing with which to meet any emergency that may arise.

However, in return for this independence he must pay a price. This price varies according to circumstances, but it is never light. It must be paid in a daily expenditure of strength and endurance, the most precious possessions of the fighting man in campaign. War makes a frightful demand upon the strength of every soldier, and the wise soldier, the man who wants to come through successfully, will overlook no way in which he may hoard and conserve his physical power. There are only a few ways in which he may do this. Among the few, perhaps the most fruitful of all is care in the making and wearing of the pack.

It is not overstating the importance of this subject to say that the foot-soldier can do himself as much harm with his own pack as the enemy can do him with a rifle. The most the enemy can do to you is to disable you, kill or wound you and put you out of the game. It requires work and skill and courage on his part to bring this about. You can do all of this for him

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by a little carelessness, a little neglect in the making and carrying of your pack, neglect which will surely result in your being left by the roadside, laid out, out of the game at the time when you are most needed at the front.

It is therefore of the greatest importance that the foot-soldier understand clearly the principles underlying the construction of his pack and the equipment with which he carries it—how it is designed to lighten his burden, how it may be used to his advantage, and how it may be misused to his discomfort and, possibly, to his total disablement.

There are certain things about the carrying of any load which make for fatigue. Among these are the weight, the distribution, and the arrangement of the load. Of course, there is no way of getting around the matter of weight. If you carry a certain number of pounds a certain distance, it is going to take a certain amount of strength and energy out of you. But you all know that there are ways and ways of carrying a given weight—ways which make a world of difference in the fatigue it costs you.

For example: Pick up a sack of potatoes in your arms and carry it a block. At the end, yours arms and back will be breaking. Then take the same sack of potatoes on your shoulder and carry it back, and you will hardly notice the tax on your strength. That is because in one case you carried the sack improperly and awkwardly, using the wrong sets of muscles to do it, and in the other case you carried it properly,

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used the proper sets of muscles, and took advantage of the construction of your body to help you in your task. In other words, by placing the sack on your shoulder, you got better distribution of your load over the proper carrying surface of the body.

Distribution.—In carrying any load, the important thing is to get it properly distributed so that the proper carrying muscles are brought into play and the burden is distributed as equally as may be among them. For example, take anything weighing, say, twenty-five pounds and carry it around in your hand, on your arm, or strapped on your back, for half a day, and in the end it will feel like a ton. Now suppose that over night you should increase twenty-five pounds in weight. You would probably notice no increased fatigue after carrying the increased weight around for a day. Or, to illustrate further, take a fairly heavy overcoat and carry it on your arm for an hour, then put it on and wear it for an hour. You will find a world of difference in the way you will feel at the end of each hour. The reason is that in one case you have improper distribution of the load, and in the other you have as nearly as possible the ideal distribution.

Arrangements.—The way in which the parts of a load are arranged is closely connected with the matter of distribution. Nevertheless it constitutes an important point in connection with the matter of easing the fatigue of burden bearing. To illustrate: Throw a sack half filled with anything fairly heavy over your shoulder. Hold the upper end on your shoulder with one hand

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and reach back and hold the bottom with your other hand. Carry it a while in this fashion, then let go of the bottom, permitting the burden to flop back and forth as you walk, and note the difference in the way it tires you. In the first case the burden is being held in place, and all you are carrying is the weight. In the second case it is flopping about, and you are carrying the weight multiplied by the motion. You all know how tiresome it is to wear a long overcoat which flops about your legs. It is the same principle. It is not only the weight, but the motion that tires you.

Ideal Distribution.—Now the ideal arrangement of any load—to make it easy to carry—would be to distribute it more or less equally all over the body like surplus flesh, because its weight would then be distributed equally and uniformly all over the body with reference to the sets of muscles and the bony framework of the body which must bear the burden. This is of course impossible, but it is possible to take advantage of the way in which a man is built and approximate quite closely to this condition of arrangement.

Originally, man was a burden-bearer. Before he had animals or other transportation to do his work for him, he had to bear his own burdens. Nature intended him to do so, and it built him accordingly. Structurally, man is composed of a framework of bones, covered by a network of muscles, and these, in turn, are protected by a covering of flesh. The framework of bones gives the human body form and supports the burden of muscles and flesh. The network of muscles holds the

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bony framework together and moves it about. Now the thing that causes fatigue is the work done by the muscles. We say "Our bones ache—they're so tired," when what we mean is that the muscles which have been moving the framework of bones about are tired.

Now, if we are going to make a man carry a burden and want to help him to do it with as little fatigue as possible, we must attach that burden to the framework of his body in such a way that the muscles have as little as possible to do in holding the framework of the body in position and in moving it about. If we drape the burden about the framework of the body in such a way that there is no tendency to topple that framework one way or the other, the muscles have little or no additional work to do in holding the framework in position either while still or in motion. That is what burden-bearers have been seeking ways to do for centuries, and they came pretty close to solving their problem when they hit upon the idea of a long, slender burden borne upon the back and so suspended that the bulk of the weight is borne by the framework of the shoulders. Some burden-bearers adopted the plan of carrying the burden on the head. This gives good distribution of weight but makes the framework of the body topheavy and adds work for the muscles in keeping the body balanced.

The best practical arrangement is to place the burden on the back with a method of attachment which permits the weight to be borne upon the framework of the shoulders. This is what has been done in the Infantry Pack.

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The Infantry Equipment.—The infantryman's equipment consists of a pack which contains the shelter-half, blanket and rain cover, extra clothing, toilet articles and food, and to the upper end of which is attached a pouch in which are carried the mess utensils, the knife, fork, spoon and mess pan. To this pack is attached the ammunition belt to which, in turn, are attached the canteen and first-aid packet and, under some circumstances, the bayonet. Strapped to the outside of the pack is the intrenching tool.

The Pack.—The pack, the bulk of the burden, is, as most of you know, made up on the form of a long, roughly cylindrical roll which lies on the back, extending from the height of the shoulders to the height of the thighs. It is held in place by a pair of suspenders, in such a manner that the total weight is borne by the framework of the shoulders, as shown in Fig. *a*.

The Suspension.—The manner in which the pack is suspended from the shoulders is of the greatest importance, since on this alone depends the way in which the weight is carried.

Referring to Fig. *a*, it is seen that the pack rests on the back and is held in place by two suspenders, with four points of attachment, two at the top and two at the bottom. Now, looking at the pack and at the suspenders when all is in proper adjustment, it is seen that the suspender, from the shoulder to the point where it is attached to the top of the pack, is horizontal. This means but one thing, viz., that there is no pull down from the top of the suspender, else it would not remain

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horizontal. There are only two other points from which the weight of the pack can possibly be borne, viz., the bottom points of attachment which, in turn shows us just what part of the framework of the body bears the weight of the pack. Following the suspender upward, we see that it first comes in contact with the body at x; following it on, we see that it leaves contact with the body at y. Hence it is plain that the surface which bears the burden must lie between these two points, namely, the top and front surface of the shoulders, giving us almost a straight bearing down along the axis of the man, which comes as nearly as possible to draping the burden uniformly on the upper framework of the body.

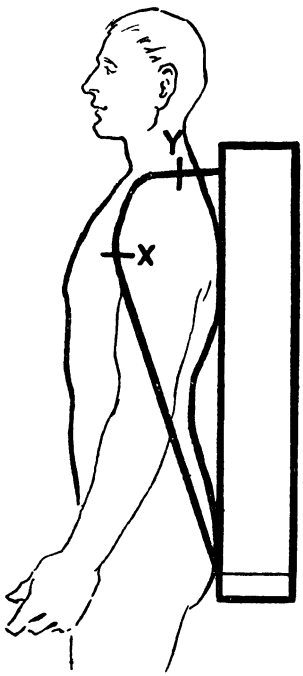

FIG. A

The Suspender.—Looking again at the drawing, we see that the important thing about the wearing of the pack is to adjust the suspenders so that the part from the shoulders to the top of the pack is horizontal or a little above. As long as this remains true, we know that all of the weight is being borne from the bottom points of suspension and is being distributed properly to the framework of the shoulders. As soon as this

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part of the suspender falls below the horizontal, we know that there is a pull down and back from the top. This pull down and back makes the man lean forward in an unconscious effort to keep his balance. The heavier the load and the poorer the adjustment, the more the man will lean forward, until, as we have seen many times with our big packs in the late war, the soldier is bent nearly double under the weight of his load. Adjustment could not, of course, have reduced the size or the weight of the load, but it would have largely removed the necessity for bending over and walking in an awkward and tiresome position.

This is the vital thing to understand about the adjustment of the Infantry Pack. Adjust the length of the suspender by means of the buckles near the bottom, until the top part of the suspender, from the shoulder to the top part of the pack, is at least horizontal or a little above horizontal.

Making the Pack.—The regulations describe in detail how to make up, adjust and wear the pack. These instructions should be followed carefully because they are the result of thought, study and experiment with hundreds of men of all sizes and shapes, under all possible conditions of weather and marching. *The length of the pack is the same for all.* Height makes no difference. The six-footer and the little man carry the same length of pack with equal ease. There is a reason for this. In order to throw the weight of the pack on the proper bearing surface of the shoulders and to prevent the pull down and back, it is necessary to have what

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we call "the long suspension." To illustrate: make the pack half the prescribed length, shorten up the suspenders and put it on a man's back. It will immediately slide down the man's back as far as the suspenders will permit. No adjustment can prevent this, and the result will be that its entire weight is pulling down and back as though slung about the neck. The moment you begin to shorten the pack, that moment you begin to lose the benefit of the long suspension from the bottom, and the first thing you know, your pack becomes a regular millstone hanging from your neck and pulling you backward at every step.

How to Roll the Pack.—Another thing that will save your back many an ache is the rolling of the pack. If it is too loosely rolled, it will break in the middle, bow backward and spoil the suspender adjustment. It will be bigger than necessary, will spread out and cover more of your back than necessary, and will prevent circulation of air between your back and the pack. These are little things, but they count for a lot, and they count more and more with each mile you march.

It is well to follow instructions carefully, do just what is prescribed, take plenty of time and care in adjusting the equipment. Never be satisfied until it feels just right, and it will pay you big dividends in comfort every day you wear it.

The Belt.—Proper adjustment of the belt is another thing to which you must pay careful attention. When properly adjusted, the belt should hang well down

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over the hip bones—not on them—and be long enough to fit loosely about the waist. If worn too high, the belt will rub on the hip bones and make them sore. If too tight, it will be uncomfortable about the waist and may bring on stomach trouble. Remember that it is so suspended that its weight is borne from the shoulders, and all that is needed in the way of adjustment is to get it low enough about the hips to protect the hip bones and tight enough to keep it from flapping when you walk.

How to Make the Pack.—The detailed description of how to make up the pack in its various forms, sling it and adjust it, will be given in the appendices to this talk.

How to Carry the Rifle.—One thing you will notice about the infantry man's equipment is that there are no straps across the chest to interfere with the breathing. This is a matter of great importance to the foot-soldier, and it gives a clue to the way in which the rifle ought to be slung when not carried on the shoulder. There are a number of ways in which it may be slung, on either shoulder, muzzle up, and steadied by the hand, or across the top of the pack. *There is only one way in which it should never be slung, viz., with the sling across the chest.*

How to Wear the Pack.—Make it up exactly as prescribed. Turn it over and flatten out the part which lies against the shoulders. Put it on and then wriggle it into a comfortable position just as you would a heavy overcoat.

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Keep it on until you reach camp or fall out for a long rest. Taking it off and putting it back on at every halt only makes useless work for you. It does not rest you in any way. All you have to do is to sit down, and the moment the lower end of the pack touches the ground, every ounce of the weight is removed from your shoulders. Lean back against a fence or a tree, and you are as comfortable as you would be if sitting in a chair. When it is time to fall in, you have nothing to bother about. You can take advantage of the full period of rest. You do not have to begin getting ready in advance of the signal to fall in. All you need do is to get up, give yourself a shake, and you are ready for the next hitch. This is a small matter, but it is important. It will save energy for you and, on the march, every ounce of energy counts.

When first issued, the equipment may need daily adjustment, because the adjusting straps are new and will probably stretch a little, but this should cease after a short time. The pack equipment is issued with two kinds of suspenders, viz., of duck and of web. With the broad duck suspenders it is advisable in the beginning to train them to fit the shoulder. This may be done by running the thumb along under the outer edge occasionally, curling the edge upward and making the suspender rope to fit the shoulder.

Care of the Equipment.—This equipment requires very little care, as there is little if anything about it to get out of order. When an occasional stitch gives way, it should be repaired before others do the same. Broken

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buckles should be replaced at the first opportunity. A number of buckles for this purpose are carried in the repair chest of the company.

To clean the equipment, it should first be brushed with a fairly stiff brush to remove mud and dirt, then washed with ordinary soap and cold water. The use of hot water and a stiff brush is liable to remove the color. Washing will always remove some of the color, but if it be done with cold water, and if the equipment be hung up and permitted to dry in the shade—not in the sun—there will be a minimum loss of color.

Care of the Rifle.—The rifle is the soldier's most valuable possession. He must learn to look upon it as a part of his own self and to give it as much care and attention as he gives to his own body. On his rifle depends his safety, often his life and those of his comrades. The rifle must be kept in perfect working order at all times, ready for instant and effective use. This means that it must be in perfect mechanical condition at all times, and scrupulously clean. A little dirt or sand in the chamber may result in disabling the piece at just the time it is most needed. A little mud in the barrel of the piece may result in an accident that will destroy the rifle and injure the owner.

The regulations prohibit the soldier from taking his rifle apart except with permission. There is seldom need for him to do so. It rarely gets out of order to a degree that cleaning and oiling will not remedy. When it is out of order mechanically, it is best to turn it over to one of the trained experts in the company to be repaired

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and put in condition. Some of the small parts of the rifle break from time to time. A supply is always kept on hand in the company, and an expert is there to make the replacement.

NOTE: The talk on the subject of arms and equipment should include a demonstration of the way in which the pack is made, adjusted and worn. This demonstration should embrace making up the pack in all of its different forms, viz., with rations, without rations, and the haversack without the pack. It may prove advisable to separate the talk and the demonstration, but if this is done, the demonstration should follow closely after the talk, and the salient features of the talk should be repeated and emphasized as the demonstration progresses.

APPENDICES

INSTRUCTIONS FOR ASSEMBLING THE INFANTRY EQUIPMENT, ADJUSTING IT AND FOR PREPARING IT FOR INSPECTION.

To Assemble the Cartridge Belt.—Place the adjusting strap on the ground, eyeletted edge to the front; place the pocket sections on the ground in prolongation of the adjusting strap, pockets down, tops of pockets to the front; insert end of adjusting strap in outer loop of metal guide, from the upper side, carry it under the middle bar and up through the inner loop; engage the wire hook on the end of the adjusting strap in the eyelets provided on the inner surface of the belt.

To Adjust the Belt.—Adjust it to fit loosely about the waist, that is, so that when buckled, it may rest well down over the hip bones, on the sides of the body, and

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below the pit of the abdomen in front. Care should be taken to make this adjustment equally from both ends of the adjusting strap so that the center eyelet shall be in the middle of the belt.

The First-Aid Pouch.—Attach the pouch under the second pocket of the right section of the belt by inserting one hook of the double-hook attachment in the eyelet from the inside of the belt; pinch the pocket, bringing the eyelets close together, and insert the other hook in the same manner in the adjoining eyelet.

The Canteen.—Attach the canteen cover to the belt, under the rear pocket of the right section, in the same manner as prescribed for the first-aid pouch, after which place the canteen and cup, assembled, in the cover and secure the flap.

The Pack Carrier.—Spread the haversack on the ground, inner side down, outer flap to the front; place the button-holed edge of the pack carrier on the button-holed edge of the haversack, lettered side of carrier up; buttonholes of the carrier corresponding to those of the haversack; lace the carrier to the haversack by passing the ends of the coupling strap down through the corresponding holes of the carrier and haversack nearest the center of the carrier, bringing the ends up through the next buttonholes and continuing to the right and left respectively.

To Attach the Belt to the Haversack.—Place the assembled haversack and carrier on the ground, inner side down; place the cartridge belt, pockets down, tops to the front, along the junction of the haversack

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and carrier; insert hook on rear belt suspender in the center eyelet of the adjusting strap so that the hook will be on the outside of the belt; insert hooks on ends of front belt suspenders in the eyelets between the second and third pockets from the outer ends of the belt, so that the ends of the hooks will be on the outside of the belt.

To Attach the Bayonet Scabbard.—Attach the scabbard by passing its lower end through the loop on the side of the haversack body, then engage the double-hook attachment in the eyelets on the outer flap of the haversack, inserting the hooks from the inside. Place the bayonet in the scabbard.

To Attach the Intrenching Tool Carrier.—Fold the outer flap of the haversack over so that the meat-can pouch is uppermost; pass the intrenching tool carrier beneath the meat-can pouch and engage the double-hook attachment in the eyelets in the flap, inserting the hooks from the under side. Place the meat can, knife, fork and spoon in the pouch.

The equipment is now assembled, ready to receive the pack and the rations.

To Assemble the Pack with Rations.—Place the assembled equipment on the ground, spread out, suspender side of the haversack down; arrange the rations in a cubical pile, approximately eight inches on a side, one edge on the line of attachment of the inner haversack flap; roll the toilet articles and extra underwear in a convenient package and place it in front of the pile of rations; fold the inside flap of the haversack over these

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articles, turning the end of the flap back so that, thus shortened, it extends about two inches beyond the rations and toilet articles; fold the sides of the haversack up over the rations, smooth them out flat; pass the binding straps through the loops on the inner flap and fasten them by means of the buckle on the opposite side of the haversack; pull tight to make a compact package; fold the outer flap of the haversack back over the package and fasten it securely by means of the lower haversack binding strap. The haversack is now packed and the carrier is ready to receive the pack.

To Make the Pack.—The size of the pack is determined by the proper folding of the blanket. To do this, fold the blanket once across its shortest dimension, then fold it twice on the longest dimension; fold the poncho, or, if there be no poncho, the shelter half to approximately the same dimensions; place it on the ground, and place the blanket on top of it; place the shelter-tent pins and other articles along the center of the folded blanket and across the shortest dimension; fold the edges of the shelter-half, or poncho as the case may be, over the blanket and, beginning on either of the short sides, roll tightly and compactly (see Fig. 1).

The ends of the pack, when rolled, may be secured by what is called enveloping. This is effected as follows:

To Envelope the Ends of the Pack.—As you near the end of the roll fold over the shelter-tent half to the width of about eight inches, making the envelope. Raise this top flap and simply roll the roll into it.

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This makes the roll very compact, easy to handle and prevents it from coming apart. Fig. 1 illustrates the process.

Fig. 1.—Making the Envelope.

To Assemble the Pack.—Leaving the haversack and carrier on the ground, place the pack in the pack carrier and grasp the lower ends of the carrier, one in each hand; place the right knee against the lower end of the pack (see Fig. 2); pull the carrier down and force the pack close up against the bottom of the packed haversack; without removing the knee, secure

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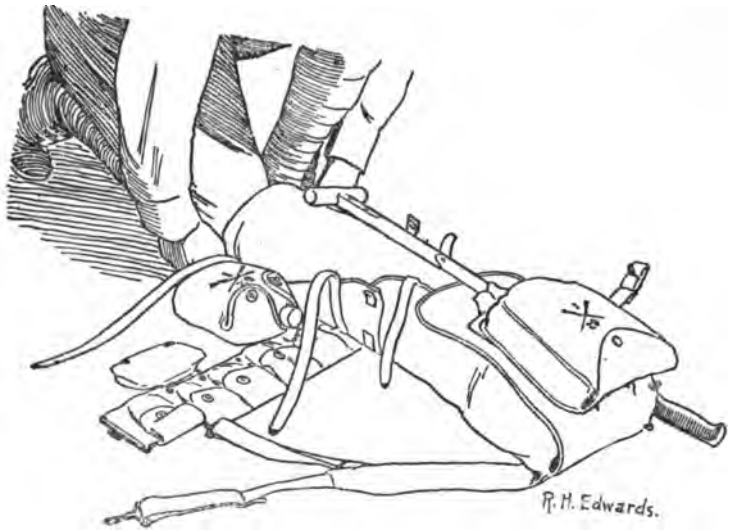

FIG. 2.—Placing the Roll in the Carrier.

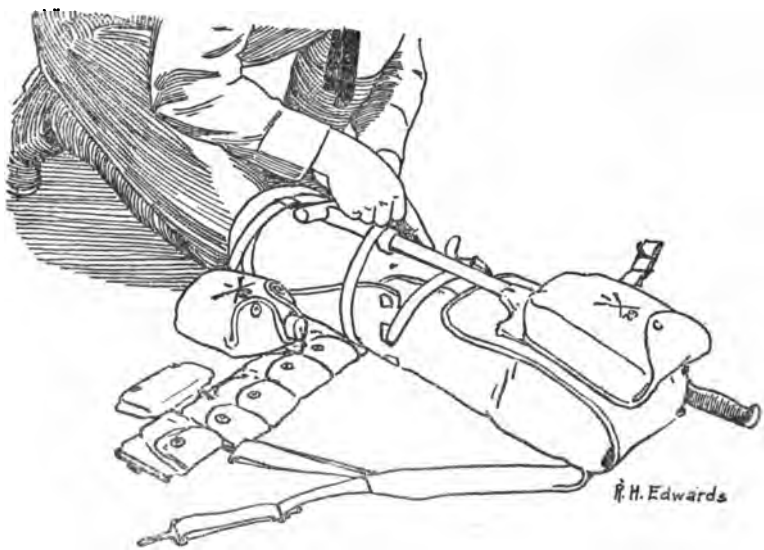

FIG. 3.—Strapping Roll in Carrier.

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the pack in place by means of the lower carrier binding strap, taking pains to make it as tight as possible; then secure the upper carrier binding strap, passing it over and including the intrenching tool (see Fig. 3); engage the snap hooks on the lower ends of the suspenders in the corresponding rings on the bottom of the carrier.

The equipment is now assembled and ready to be put on (see Fig. 4).

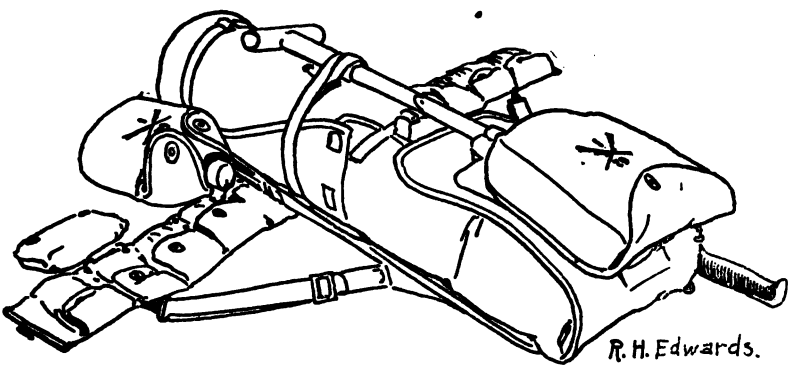

Fig. 4.—The Completed Pack.

To Assemble the Pack without Rations.—Fold the blanket, shelter-half and poncho, if any, as described above; place the toilet and other small articles in a row down the middle and parallel to the longest dimension; begin on either of the long sides and roll as heretofore described. When rolled, it should look as shown in Fig. 5.

Place the assembled equipment on the ground as heretofore described; fold the inner flap of the haversack so that its end will be on a line with the top of the

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haversack body; fold the lower haversack strap in the same manner; place the rolled pack on the equipment, the upper end perhaps an inch above the upper edge of the haversack body; fold the sides of the haversack and carrier smoothly over the pack and

Fig. 5.—The Long Roll.

strap them with the binding straps; fold the outer flap of the haversack back over the top of the pack and secure it snugly by means of the loose end of one of the binding straps; attach the lower ends of the suspenders to the pack. The equipment is now assembled and ready to be put on (see Fig. 3).

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It should be noted that the total length of the pack when made up, either with or without the rations, is approximately the same.

To Adjust the Equipment to the Soldier.—Pick the equipment up from the ground (see Fig. 6), slipping the arms, one at a time, through the pack suspenders as through the sleeves of a coat (see Fig. 7). By means

Fig. 6.

Fig. 7.—Putting on pack.

of the adjusting buckles on the suspenders, raise or lower the cartridge belt until it rests well down over the hip bones on the sides and below the pit of the ab-

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domen in the front; raise or lower it in rear until the adjusting strap lies smoothly across the small of the back; by means of the adjusting buckles on the pack suspenders, raise or lower the load on the back until the top of the haversack is on a level with the top of the shoulders, the pack suspenders, from the point of their attachment to the haversack, to the line of tangency with the shoulder being horizontal or above. This is most essential (see Fig. 8).

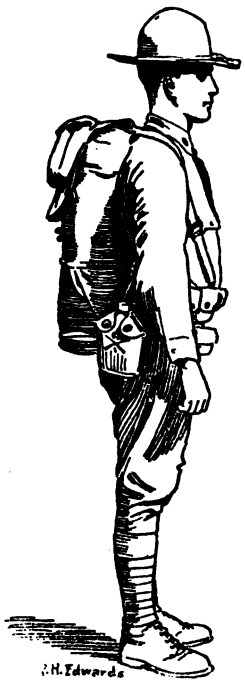

FIG. 8.—The Pack Adjusted.

To Use the Haversack without the Pack.—Place the equipment on the ground as heretofore described; detach the carrier from the haversack; fold up the inside flap of the haversack until its upper end is on a line with the top of the haversack body; fold the sides of the haversack over, pass the three binding straps through the loops on the inside flap and secure by means of the buckles on the opposite side; pass the lower haversack binding strap through the buttonhole in the lower edge of the haversack; put the toilet and other articles in the pouch thus formed; fold the upper flap of the haversack over the whole and secure by means of the binding strap; pass the suspension rings on the haversack through the contiguous button-holes and engage

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them with the snap hooks on the suspenders. Adjust the haversack to the back by shortening the suspenders until the top of the haversack is on a line with the top of the shoulders.

To Discard the Pack without Removing Equipment.—Unsnap the pack suspenders from the suspension rings and snap them into convenient eyelets on the belt in rear of the pockets; support the pack with one hand and, with the other, grasp the coupling strap at its middle and withdraw first one end then the other; press down gently on the pack with both hands and remove; lace the coupling strap into the buttonholes of the carrier and shorten up the suspenders.

Preparation for Inspection.—Inspection of the equipment and its contents is a matter of frequent necessity in order to ascertain its condition. A uniform method of laying out the equipment for inspection is desirable. The drawings herewith show the method for laying out the entire equipment for inspection, either on a bunk or on the ground. This method permits of quickly verifying the presence and condition of all of the articles of equipment.

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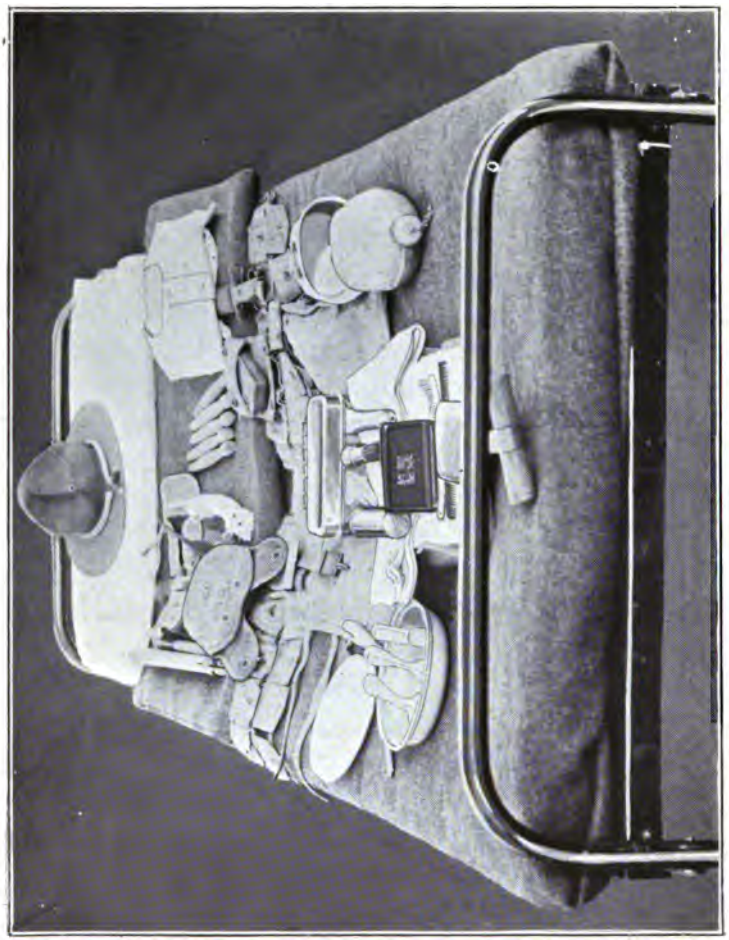

FIG. 9.—Arrangement of Equipment on Bed for Inspection.

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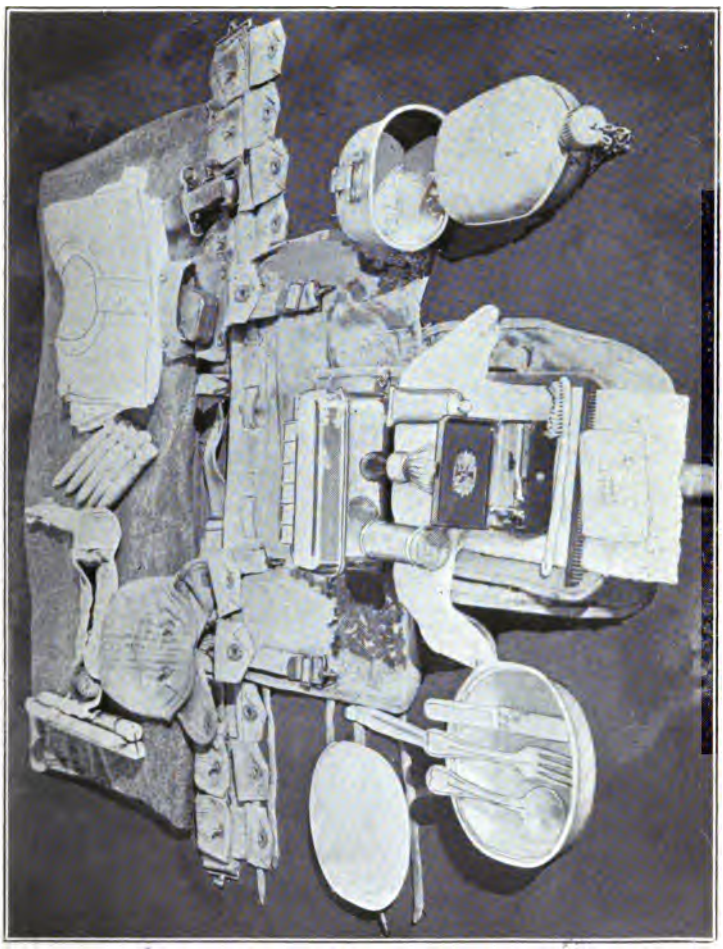

Fig. 10.—Arrangement of One Set of Equipment for Inspection.

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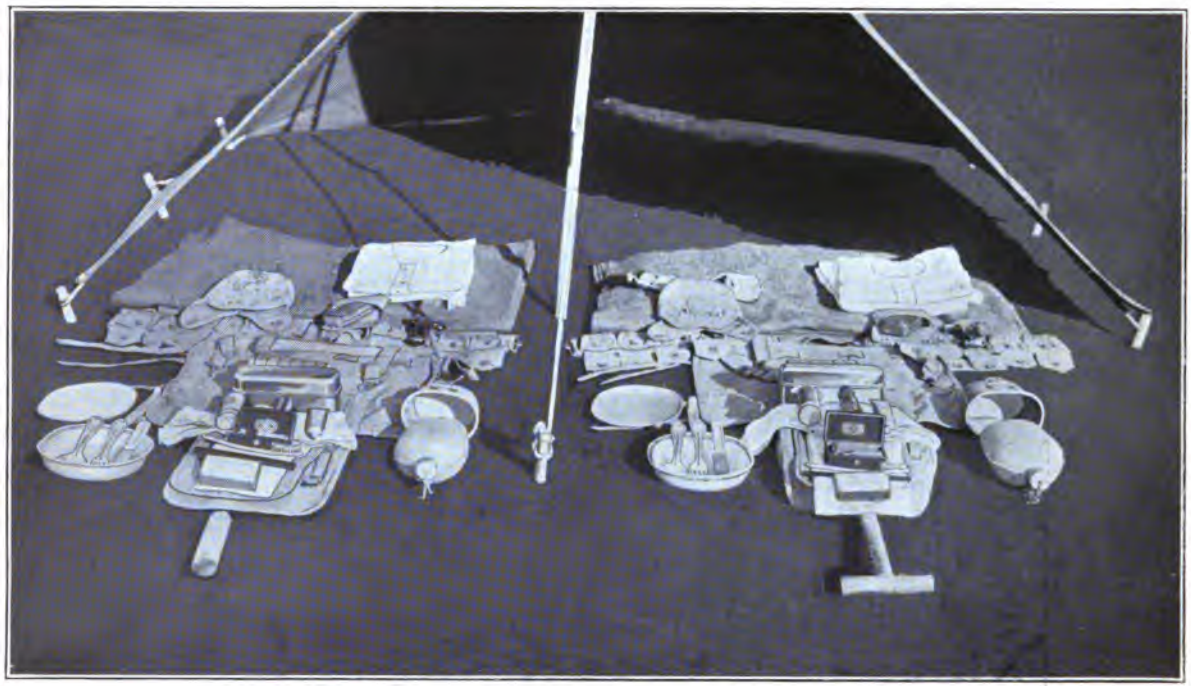

FIG. 11.—Arrangement of Equipment for Inspection in Front of Shelter Tent.

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ADVANCE GUARDS

A column of troops on the march in a country where they may come upon the enemy at any time, is divided into a main body and such covering detachments as may be necessary.

These covering detachments are called technically "advance, flank and rear guards." They are sent out for the two-fold purpose of securing information about the enemy and of protecting the main body from being fired into while it is marching along the road.

The covering detachment that goes ahead of and protects the march of an advancing column is called an "advance guard." It consists of a series of groups increasing progressively in strength from front to rear, each being charged with protecting the group immediately following it from surprise and thus gaining time for the latter to get ready to fight.

Formation.—The advance guard is normally divided into a support and a reserve. From the support, an advance party is sent to the front a few hundred yards, and from this advance party a small patrol, technically called a "point," is sent out. From time to time, as the occasion demands, patrols are sent out to the right and left. These are called "flankers."

When the advance guard consists of only a small force the reserve is omitted, and we have only a support from which an advance party is sent out.

Let us be specific. Let us say we have an advance guard composed of one company of infantry. What

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would be the formation? The first platoon will be the advance party from which a "point," varying in strength from four men to a squad, is sent to the front a distance of some 150 yards. The other three platoons of the company will form the support and follow the advance party at a distance of 300 or 400 yards.

We do away with the reserve. It would divide the company into too many component parts and make control just that much more difficult. This is what may be termed the usual formation. Conditions may be such that it is desirable to make the advance party stronger; as where the enemy is opposing us with relatively small parties and we want to drive them off without bringing the support into action.

In any case you must have a knowledge of the functions of the advance guard. You must know the mission and be able to size up the situation in the particular case. Then you must use your plain common-sense in meeting the situations as they develop.

Duties.—Now let us see just what the duties of an advance guard are—what part it plays in the game of war. In general its duties are to observe and to resist. In the case I have outlined to you—the company as an advance guard—the advance party would constitute the observing—the reconnoitering—element and the support, the resisting or fighting element.

Specifically these duties are:

1. To gain information of the movements of the enemy by sending out detachments to the front and flanks wherever necessary. Here is an important point

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to remember. Under the conditions of modern warfare, the haphazard method of sending out flanking patrols has every chance of resulting in disaster. The men thus sent out never get back in time to be of any use to you when you need them. They cannot keep up with the marching column. The duty is exhausting and soon wears out your troops. It should be reduced to a minimum. This is not to say that the flanks of a column should be neglected. On the contrary, they are the vulnerable points, and in cases where there is real danger they should, as a rule, be covered by regularly organized flank guards.

2. To prevent the main body of our troops from being fired into while they are in a formation that prevents them from defending themselves effectively. You do not have to draw very strenuously on your imagination to picture what would happen if an effective machine-gun fire or rifle fire were suddenly poured into the company while it is marching in a column of squads on the road. You can see the confusion that would be created. You can realize the losses that would occur.

3. To push back small parties of the enemy. The progress of the main body must not be arrested by small, comparatively insignificant detachments of the enemy. It is the duty of the advance guard to brush them aside. How many times at maneuvers have you seen a skillfully handled patrol make a whole advance guard deploy? It should have been swept away by the advance party. Even the support should not have been

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delayed by the affair. The big idea is that the advance guard is a human battering ram that simply must keep pushing to the front until it is stopped by superior numbers.

4. To check the advance of the enemy in force, long enough for the main body to get ready to fight. When the enemy is met in sufficient force to warrant the employment of troops of the main body, there is a certain process that the commander has to go through before he is ready to fight. A reconnaissance must be made to determine the strength and dispositions of the enemy, for it would be folly to commit a force to action without knowing something of these elements. Then the orders for the deployment of the troops have to be given, and the troops have to be moved into the proper fighting formation. All of this takes a certain amount of time, during which period the advance guard must hold off the enemy.

5. To remove obstacles, repair the roads and favor in every way the uninterrupted progress of the main body.

These are the duties of the advance guard. These are the things that you as platoon commanders must know how to do. These are the things that you must learn to do in peace-time, in order that you may do them instinctively in time of war when quick decisions and action are necessary and the lives of your men depend upon what you do and how you do it.

Distances.—The distance between the several elements of the advance guard is fixed by the general

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rule that "the element in front must be at such a distance that the next succeeding element will not be involved in a disaster to the former."

Referring back to the company in advance guard formation: The point will be from 100 to 150 yards ahead of the advance party. The latter will be from 300 to 400 yards in front of the support and the main body will follow the support at a distance of some 400 yards. It will thus be seen that the head of a battalion with one company as advance guard will be about 1,400 yards away from the enemy. This allows a minimum distance of 400 yards from the leading man of the point to the enemy. If a deployment becomes necessary, it can be made in comparative security.

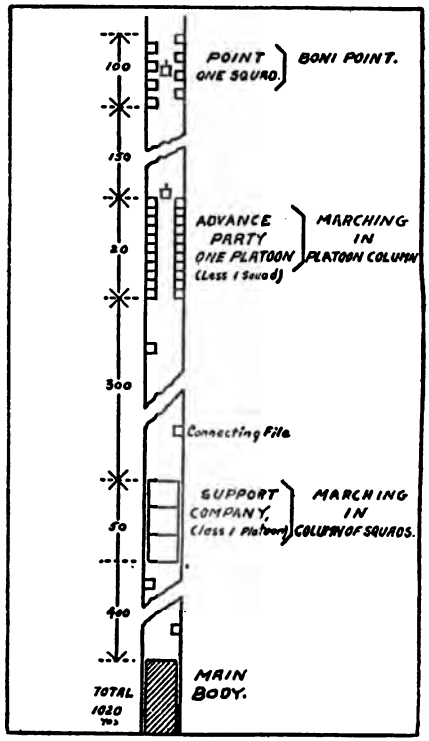

PLATE I.
Formation of advance guard of one company for a battalion.

Communication.—Communication between the several elements of the advance guard and with the main body is kept up by means of connecting files which

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march between them. They employ signals and act as runners when necessary.

Now let us see what the procedure would be to get our company of infantry on the road in advance guard formation. I am going into the details of this rather elaborately to show you the steps that have to be taken.

Many people have the idea that all the captain has to do is to wave a magic wand over the company and, presto, it will be immediately transformed into an advance guard. I will convince you that such is not the case.

Estimate of the Situation.—Let us say that our battalion has been ordered to march from one place to another. It is in hostile country where a force of the enemy may be encountered at any time.

The major sizes up the situation. Based on his orders he decides what his mission is. He considers the situation with respect to the enemy, what his strength and composition may be, where he is likely to be encountered and what he will do. He then considers the situation with respect to his own troops, their strength and composition compared to the enemy, the arrangement of his troops in the column of march, and what he will do under various conditions. He considers the country over which the march is to be conducted. He then arrives at a decision as to what he is going to do.

This is what is technically known as an "estimate of the situation," simply a sizing up of the situation

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and arriving at a decision as to what one is going to do under the circumstances.

Orders.—Finally, our major puts his decision in the form of an order which is called a "field order." I will explain the elements of a field order to you in a few minutes.

The major assembles his officers and dictates his order to them. They return to their organizations and work out the details of what they are going to do to carry out the orders of the major.

In the field order, the major has provided for an advance guard. Our company has been designated for that duty.

The captain sizes up the situation in much the same manner as the major did and based on the major's order he issues his march order which contains the following elements:

1. Information of the enemy and our supporting troops.

2. The plan of the captain—to form the advance guard.

3. The disposition of the troops:

(*a*) Orders for the advance party, commander and troops, route to be taken and time of starting.

(*b*) Orders for the support, distance at which it will follow the advance party.

4. Administrative arrangements.

5. Where the captain will march.

This is what is called a "field order." There are five elements to it. The form for it was adopted in

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our service back in 1904, when our first Field Service Regulations were adopted by the War Department. It has stood the test of time and was found suitable for the operations of the American forces in France in 1918.

The arrangement is simple and complete. Its elements are identical for all forces from a platoon to a division.

When we went to France we found the trench warfare system in full swing. It had been reduced to a science by the British, French and Germans. The orders for the simplest military operation were most voluminous, prescribing every detail of procedure and leaving practically nothing to the initiative of commanders of troops.

When we got the Germans out into the open we soon discarded the clumsy system and came back to our own five-paragraph order. It served the purpose most admirably. I think we will stick to it in the future.

By learning the system and getting it firmly fixed in your mind you do away with all future difficulties in the composition of field orders, and you need have no fear of leaving out important details.

Returning now to our advance guard, I want to go into the details of just how the advance party is brought into being and how it does its work.

In the first place, every man in the platoon must be informed of the tactical situation and the part that the platoon is going to have in the operations of the

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advance guard. This is best imparted to them in a five-paragraph order. There is no danger of leaving out important details.

The lieutenant will assemble the noncommissioned officers in front of his platoon. He will call the platoon to *attention* and then give the command *At ease.* He then cautions the men "give me your attention," and proceeds to issue his verbal order which would take the following form:

"Enemy patrols are reported in the direction of .....Contact has not yet been gained. Our battalion marches towards..... Our company forms the advance guard. The company (less this platoon) forms the support and marches behind us at a distance of 300 yards.

"This platoon will form the advance party.

"Sergeant K (platoon guide), take the first squad and move out as a point. March via the ....., ... road.

"Privates G and H (Nos. 1 and 2, front rank, second squad) will be the connecting files between the point and advance party.

"Private M (No. 3, front rank, second squad) will march at the rear of the platoon and watch out for signals from the rear.

"The rest of the platoon will follow the point at a distance of 200 yards.

"I will march at the head of the advance party."

At the time designated for the march to start, the lieutenant would detach the leading squad from the

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platoon and direct "Sergeant K, move out with your point. Connecting files march at the proper time. Private M, assume your duties."

Sergeant K moves out with his point. What formation is he going to take?

The Point.—The point of an advance guard is nothing more nor less than a combat patrol that is being strongly backed up by friendly forces behind it. Its formation should be such that it will be the least vulnerable and that the commander will be able to control its operations.

Moving along the road, the "Boni Point" formation will generally be found to meet the requirements. The men march on alternate sides of the road with a distance of 10 to 20 yards between them. The point commander marches where he can best superintend the work and control the operations. It may be necessary at times to deploy the point as skirmishers with extended intervals.

The main idea to be instilled into the members of a point is that they are a combat patrol, a fighting body that must keep pushing to the front. It must not stop until absolutely compelled to do so by the fire of the enemy.

When the enemy is encountered the point commander will have to size up the situation and take the necessary action. The men should look to the leader for instructions and guidance and wait for orders.

As soon as the point has moved out the platoon commander will get his platoon into march formation.

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We have used up the first squad as a point and practically all of the front rank of the second squad as connecting files. The leader of the second squad with his rear rank will be held for patrol duty. There remains the third squad of the first section and the second section complete.

The Advance Party.—The rear rank of the second squad under the corporal can march on the right-hand side of the road in a column of files. The third squad can march on the left-hand side in a squad column. The second section will march in column of squads.

If the point has to be reinforced or a quick deployment made, the second squad can move out to the front, picking up the connecting files on the way, and the third squad can break into a line of skirmishers, with every man in his place with the least possible amount of movement. The second section can be deployed as a second wave.

You will find this a very convenient way to march the advance party. It is certainly a formation of readiness for immediate action.

Only close-in flank reconnaissance is to be expected from the advance party. The habit of sending out flanking parties just to preserve a normal formation in accordance with the plates and diagrams in the books should be avoided.

Commanders should study the situation and the ground as they go along and send out flank reconnoitering parties only when they are necessary. A careful observation and study of the terrain will indicate

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when and where they should be sent. As stated before, when there is any real necessity for flank patrols it is generally best to meet the situation by sending out a regularly organized flank guard. This will relieve the advance guard commander of many of his worries.

The Support.—The support follows the advance party at a distance of from 300 to 400 yards and marches in column of squads on the road. There is really not very much for it to do except march along until the enemy is encountered in sufficient force to stop the advance party, when it will have to take a hand in the proceedings.

Halts.—All troops should be trained to make regular hourly halts at a specified time. It was found during the war that this was necessary, and the plan of halting at ten minutes to the hour and resting until the hour was adopted by most of the divisions. You can see the great advantage of this system in the advance guard. At ten minutes to the hour the advance guard and advance party commander know that the column is going to halt for ten minutes, so, as the time approaches, they look out for halting places which will best afford protection to the halted column. There is everything in favor of such a practice, and I know of no arguments against it.

When a column on the march halts for any extended period of time, the advance guard continues its covering duty by forming march outposts. These are simply patrols sent out a certain distance to the front and

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flanks where they halt and remain until they are recalled to continue the march. The advance party usually furnishes these patrols.

The support is posted at some central point from which it can readily reinforce any group that may be threatened by the enemy.

Flank Guards.—When a column of troops marches under conditions where there is danger of attack from a flank, a body of troops is detached from the main body to march abreast of the column on the dangerous flank. This body is technically called a "flank guard."

It takes up the general formation of an advance guard, having a point thrown out to the front. Patrols are sent out to the exposed flank whenever necessary, and communication with the main body is maintained by means of connecting files or patrols.

In some cases it may be necessary to detach a small rear party for the flank guard, as in the case where the flank guard has been attacked by a comparatively large force of the enemy and has taken up a position to hold it off until the main body can pass the danger point and the flank guard resume its march.

The general duties of the flank guard are much the same as those of the advance guard. They do everything possible to provide for the security and uninterrupted progress of the main body. All other duties are incidental to this, and all have these prime objects in view.

Let us be specific. Let us say we have a flank guard consisting of one rifle platoon, sent out from our marching battalion. What formation would you take? As-

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suming the general formation of an advance guard, we would use one section as advance party from which a point of four men would be sent to the front. The second section would constitute the support and follow the advance party at a distance of from 200 to 300 yards.

Patrols would be sent to the flank from the support at such places as cross roads leading from the direction of the enemy. They would have orders to remain out until the main body has marched past the dangerous point.

The flank guard should march in such formation that it may be quickly deployed either to the front or towards the threatened flank. Section columns provide a formation that is well suited to the occasion. One column of files marches on each side of the road.

There are several advantages in marching in this formation. The column is not as vulnerable as a column of squads. When it is necessary to deploy, the section simply spreads out on each side of the road into a skirmish line ready for action. It eliminates the slight confusion always incident to the deployment from a column of squads. In deployment it prevents that formation you so often see—a column of files with the men crouched in the ditches alongside the road and firing into each other's backs.

Rear Guards.—When it is no longer practicable to give an action a favorable turn, it may become necessary to retreat. In this case every effort is made to place distance and a body of unshaken troops between the enemy and the defeated troops.

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The body of troops thus interposed is technically called a "rear guard." It protects the main body from the onslaughts of the enemy and enables it to get away to a place where it can be reorganized and put into shape to defend itself, thereby preventing the retreat turning into a rout.

The general formation is that of an advance guard reversed. Next to the enemy there is a rear point, then comes a rear party that corresponds to the advance party in the advance guard and, finally, a support.

From the nature of its duties and the circumstances under which it operates, the rear guard can expect no assistance from the main body. It has to fight out its battles alone. The main body is marching away from it all the time and must not be turned back.

The rear-guard commander takes advantage of every possible opportunity to delay the enemy by obstructing the road, demolishing bridges, etc., taking up positions to make him deploy and organize a regular attack, all of which takes time.

In this connection the rear guard must not remain in position so long that it will become so seriously engaged that it may be entirely destroyed.

Machine guns protected by snipers are especially adapted for rear-guard work. They can be arranged in position in checkerboard fashion with little expenditure of time and labor. They can be so concealed that the enemy comes upon them as a surprise. He must then stop and systematically attack them. They will be able

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to hold out for extended periods and thus gain much time for the retreating troops.

It requires only a few men to operate them and, when the time comes to withdraw, the guns can be disabled and abandoned.

Withdrawal from a rear-guard position in the daytime is fraught with the possibility of such great losses that it is a most hazardous undertaking. As a rule it is preferable to hold on until after dark at all costs and then effect the withdrawal under cover of darkness.

This is the plan that was adopted by the Germans in their retreat in the final phase of the battle of the Meuse-Argonne. During the night the rear guards would take up a covering position with machine guns. When the American advance started out the next morning they would meet only slight opposition until they reached the new rear-guard position.

Then came the problem of locating the machine-gun nests and putting them out of action. In many instances this was a most difficult task. To have butted into these machine guns headlong would have entailed ruinous losses. The wise troops went about this job systematically, using all of the auxiliary weapons at their command. By nightfall they were usually in a position to overrun the machine-gun positions and break up the defense. The Germans simply had to hold on during the day, for it meant complete annihilation to attempt to withdraw.

This is the system that we will probably adopt if it ever becomes necessary for us to retreat. We hope

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never to have to do this, but we must be prepared for such a contingency and must train our troops so that in case of necessity we will at least have some ideas about it.

When the Allies retreated from the Chemin des Dames before the German onslaught that started on May 27, 1918, the Second American Division was thrown in at Chateau Thierry as a rear guard and managed to stop the Germans along the Marne. The allied lines reformed on the second division, and the lines were finally organized into a defensive position.

SYNOPSIS OF TALK

Composition of column of troops on the march; Covering detachments; Advance guards; Formation; Support; Reserve; Advance party; Point; Company of infantry as advance guard for a battalion; Formation; First platoon advance party; Rest of company, support; Distances; Duties; Observe; Resist; Information of enemy; Reconnoitering groups; Prevent main body being fired into; Push back small parties of enemy; Check advance in force; Remove obstacles; Distances between elements; Communication; Estimate of the situation; Mission; Enemy; Own troops; Terrain; Decision; Orders; Explain five paragraph field order; Experience in France with field orders; Orders for advance guard; Information of enemy and supporting troops; Plan of platoon commander; Orders for point; Orders for connecting files; Order for rest of platoon; Place of platoon commander; The point; Formation; Operations; Flank reconnaissance; The advance party; The support; Halts; Hourly; Extended time; Operations of advance guard; Advance party; Support; Flank guards; When used; General formation; Duties; One platoon; Patrols; March formation; Rear Guards; Retreat; Formation; Method of operation; Duties; Machine guns; Withdrawal; Experience in war of 1917; Meuse-Argonne German offensive, May 27, 1918.

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OUTPOSTS

A Surprise.—A body of troops is operating in a country where, at any time, they may come upon the enemy. They halt and go into bivouac for the night.

While they are peacefully sleeping a party of the enemy sneaks up to a point within effective rifle range and, suddenly and without warning, opens a murderous fire with rifles and machine guns.

You can hear the crack of the rifles and the put-put-put of the machine guns as they spit the leaden hail from their muzzles.

You do not have to draw very strenuously on your powers of imagination to picture what would be happening at the other end of the line. You can see the pandemonium that would reign. You can hear the smack of the bullets as they strike the ground. You can hear the groans and curses of the men as they are hit and laid low.

The affair would go down in the annals of military history as a "surprise."

How are we going to prevent such an occurrence? How are we going to protect our troops from surprise while they are resting? We may keep the entire command constantly on the alert, marching by day and going without sleep at night. By so doing, we would soon wear the men out and render them unfit for further service.

Outposts.—To avoid overtaxing the troops, and allow as many as practicable to get their rest, we pro-

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tect our bivouac with a system of covering detachments which are technically termed "outposts."

Like the advance guard on the march, the outpost is charged with watching out for the enemy and, should he come, with fighting him off until the troops can get ready to give him a reception that will make him think twice before trying the same thing again.

Subdivisions.—The outpost is divided into two general lines. The first, which is called a "line of observation," does the watching for the enemy and prevents his small bodies from getting any information about or annoying our troops. The second is a fighting line which holds off larger bodies.

These lines must cover the front and flanks of the troops at rest. The watching line must be so located that the watchers out in front will be able to see the enemy before he gets close enough to do damage. The fighting line must be so located that it will have what we call a "good field of fire," that is, the ground in front must not be such as may hide the movements of the enemy and allow him to get within effective rifle range without coming under our fire.

For example: A fighting line running along the near edge of a deep woods would be objectionable because the enemy could work up through the woods and get close to the line under cover of the trees and underbrush.

We want as many men as possible to get their rest. Therefore we limit the number of men on outpost duty to the barest necessities. The number thus employed will depend upon several things. Where the country is

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well adapted for defense, the number is smaller than where it is open and difficult to defend. When the enemy is near and aggressive, the outpost must be strong and vigilant. When the fighting line of the main body is the same as that occupied by the outpost, sufficient troops must be used to hold that line until the main body can occupy it and get ready to fight.

Formation.—The formation of an outpost may best be described by referring to an out-stretched hand.

Hold your left hand in front of you with the thumb and fingers extended and pointing to the front, palm of hand down.

The wrist will be the location of the main body of troops in camp or in bivouac.

The knuckle joint of the second finger will be the location of the reserve of the outpost. This is the body of troops that is held out of the fight until the direction of the enemy's main attack is developed, when it is thrown in to meet it, or to make what we call a "counter attack." In small outposts the reserve is omitted.

The second joints of the fingers and thumb will be the positions occupied by the "supports." These are the fighting troops and they occupy the fighting line of the outpost. From these supports, small detachments, which we call "outguards," are sent to the front.

The first joints of the fingers and thumb will be the position of the outguards. These are classified as pickets, sentry squads, and cossack posts. A picket consists of two or more squads and is posted so as to cover the most important route by which the enemy

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may come. The sentry squad consists of one squad. The cossack post is composed of a noncommissioned officer and three men.

The tips of the fingers and thumb will be the line of sentinels. These are the ears and eyes of the outpost system.

The sentinels are sent out to the front from the outguards. A picket posts one double sentinel post for each of its squads. Each sentry post is charged with maintaining one double sentinel post. The cossack post maintains a single sentinel which is posted nearby.

You will notice that we do not *surround* our body of troops with an outpost. It is neither practical nor necessary to do so. The enemy cannot approach us from all directions. There is, in general, only one direction from which he can approach us in sufficient force to do us any great harm and we protect ourselves by putting our outposts *between* us and the enemy, on the routes over which he must approach.

To protect ourselves from small bodies which might be able to sneak through our outguards or around their flanks, we must provide patrols which cover the ground in between and are on the outlook for just such movements.

Sentinels.—Now, let's see how this system of posting one double sentinel from each squad works out in practice. The squad has a noncommissioned officer and seven privates. For three reliefs of a double sentinel post six privates are required. This provides

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for a tour of duty of two hours on and four off for each pair of men. In wet and inclement weather, or where the duty is especially hard, this may be reduced to one hour on and two off. The remaining private may be used as a runner to keep up communication with the support or adjacent outguards. Many times at maneuvers, and even on active service, I have seen a non-commissioned officer sent out with his squad to post an outguard. When I went around to inspect, I found that the corporal had all of his men on post with no relief for any of them. In other words, he had simply scattered his men over his front as sentinels without taking into consideration the fact that, under his system, these same men would have to remain on post constantly, day and night.

When you are detailed on outguard and given one squad, you are expected to post one double sentinel post and no more. If the support commander had intended that more should be posted he would have detailed another squad for you.

Operation.—Let us now see how the elements of the outpost link up with one another.

When the enemy attacks, he first meets the sentinels. They fall back on the outguard from which they are posted. The outguards fight off the attack until things get too hot for them and then fall back on the supports which, by this time, have gotten into their prepared defensive positions and are ready to meet the attack. The affair is fought out on this line. If it becomes necessary to reinforce the fighting troops directly,

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reinforcements are sent up to the fighting line from the reserve or, in a small force, from the main body itself. The reserve is held intact as long as possible and is thrown into the fight at the place where it is estimated that the enemy is making his main effort.

Should the enemy be beaten back, the reserve may be used to make an attack on him while his forces are disorganized and in no condition to resist.

Again I call on you to draw upon your imagination. Suppose you, with your platoon, had made an attack against the enemy in position. Your attack was unsuccessful. Just at the height of the repulse, when everything was out of control and you are trying to get reorganized, a properly formed and fresh body of troops descends upon you like an avalanche. You can well imagine what would happen.

This is what we hold the reserve for. This is one of its principal functions. When the reserve is omitted as in the case of a small outpost, these duties fall to the troops of the supports.

Sometimes the fighting line is established well out to the front and coincides or is the same as the watching line. In this case, when the attack comes, the supports are sent to the front to reinforce the outguards. This point is determined by the outpost commander. When he issues his order establishing the outpost, he indicates the fighting line at the front by stating: "In case of attack, the outguards will be supported." If he does not so indicate, it is assumed that the fighting line will be along the line of the supports, that is, along the line of the second joints of the fingers and thumb.

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The officer giving this talk should provide a large scale drawing along the lines indicated in Fig. 1.

He should point out to the members of the class:

1. The location of the main body.
2. The location of the reserve.
3. The location of support No. 1 and the position of outguards Nos. 1, 2, and 3 posted therefrom.
4. The location of support No. 2 and the position of outguards Nos. 1, 2, and 3 posted therefrom.
5. The location of the general line of sentinel posts.
6. The location of the detached post to the east of the reserve.

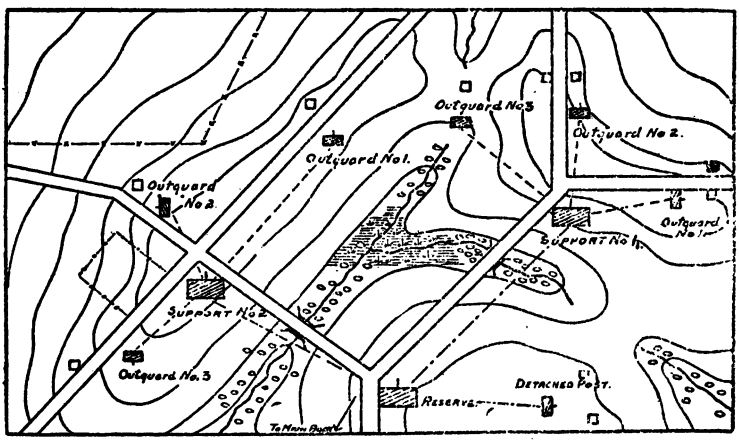

Fig. 1.—Formation of an Outpost of One Company.

He should then compare this formation with the illustration he has given—the out-stretched hand.

He will call attention to the fact that the supports are numbered from right to left, and that the out-

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guards posted from each of the supports are also numbered from right to left. This is the rule in designating supports and outguards.

He will point out how the outguards cover the routes by which the enemy may advance, and that the supports are located so that they have a good field of fire; also that the reserve is centrally located with respect to the supports.

Orders.—Now let's see how the outpost is posted—how it comes into being, what is necessary to be done, and how we do it.

In order to illustrate all of this we will take a concrete case—assume a situation in which a company of infantry has been selected to furnish the outpost for a battalion.

In the first place, the major will call his company commanders together, explain the situation to them, detail one of the companies to furnish the outpost and give the necessary instructions in the form of orders. This is usually done in conjunction with the order for the halt at the end of the day's march.

Based on this order of the major, the captain of the designated company sizes up the situation, comes to a decision as to what he is going to do, and issues his order.

He will assemble his platoon commanders and platoon sergeants and give them verbal instructions covering the duty to be performed.

He will first give them all the information he has about the enemy and all he knows about the troops of the immediate command or within supporting distance.

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He will next tell them in a few words what he intends to do, that is, he will give them his plan. In this case it would be: "*This company will form the outpost along the . . .*" (indicating the general line that the outpost is to occupy).

Then comes the designation of the troops for the several parts of the outpost and any detailed instructions that appear desirable to give.

While the outguards are getting into position there will be more or less movement along the front lines. The squad leaders will be seeking out the best location for their outguards. They will be selecting observation posts for their sentinels. Officers will be moving from point to point, making inspections, indicating errors, making readjustments and rectifying positions. The battalion intelligence group will be making a sketch of the country to the front and flanks of the position.

There may be an enemy patrol lurking in the vicinity, seeking information as to the location of the outpost, or with the mission of sniping at officers and men who may expose themselves.

In order that the groups may be moved into their places without being disturbed, and in order that all activities may proceed without molestation, it is necessary to provide protection. This is accomplished by sending out a body of troops to cover the posting of the outguards. The captain provides for this in the first part of his order when he says:

"*Lieutenant A, with the first platoon, will cover the posting of the outguards.*"

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The next step is the detail of the commanders and the designation of the troops to form the supports. The captain names the commanders and details the troops, gives the location of each support, and adds any special instructions that he desires. All of this he does in a few words:

"*Lieutenant B, with the second platoon, will form support No.* 1, *which, posted at the road fork* (*a*) *will cover the approaches from the east and north.*" (Refer to Fig. 1.)

"*Lieutenant C, with the third platoon, will form support No.* 2, *which, posted at cross roads* (*b*), *will cover the approaches from the north, west and south.*"

Provision must now be made for any detached posts that may be necessary.

When a position has been selected for the establishment of an outpost line, it may be, and frequently is, found that there is some point of tactical importance that is too distant to be included in the general line of defense. Such a position is provided for by occupying it with a detached post.

The position may lie to the front of the general outpost line, but at such distance that its operations could not be controlled by one of the support commanders. In this case the detached post would be sent out by the outpost commander.

The position may lie on the flank of the general line of the outpost, but too far away to be included in it without a sheer waste of troops to bridge the gap. In this case the troops may be detailed from the reserve of the outpost or from the main body.

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The duties devolving upon a detached post are, in general, those that pertain to an element of an outpost line, that is, observation and resistance; in detail, to watch all the approaches by which the enemy may advance, to prevent hostile reconnaissance, and fight off an attack long enough for the main body to get ready to receive it.

The captain's order for the detached post will be about like this:

"*Corporal K, with his squad, will establish a detached post in the vicinity of* (*c*), *and cover the approaches from the east.*"

The reserve is then provided for.

"*The remainder of the company will be posted at* (*d*) *as reserve.*"

You will note that the captain does not detail anyone to command the reserve. He commands it himself. It is up to him to determine when and where the reserve is to be used. The responsibility is his and cannot be delegated to anyone else.

The next is the selection of the fighting line. In case nothing is mentioned about it, the fighting line will be that occupied by the supports. In case the captain desires it located elsewhere he must so indicate. Should he desire it along the line of outguards he will state:

"*In case of attack, the outguards will be supported.*"

The administrative arrangements will now have to be attended to. The men want to know about their messing, whether they are to cook individually at the outguards wherever they happen to be, or whether

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their meals will be cooked at the company rolling kitchen. If the latter be the case the captain will indicate in his order:

"*Cooking will be done at the reserve and distributed to the supports.*"

All of the officers and noncommissioned officers must know where to send reports and messages. They should also know where they may reach the captain. In other words, they want his address. He gives them this information:

"*I will be with the reserve.*"

This does not mean that he must stay with the reserve all the time. It will be necessary for him to move around a lot. He will merely establish his headquarters with the reserve and leave someone there to represent him while he is absent—someone who knows where he can be found at all times, so that if important messages come during his absence they can be delivered to him without delay.

Finally, should anything happen to the captain, there must be someone to assume command immediately, without waiting for orders or instructions from higher authority. To provide this the captain orders:

"*Lieutenant M, second in command.*"

These are the things that must be done to get an outpost into position properly. These are the things that the outpost commander has to think about. These are the things that you will have to think about when the time comes for you to do them. These are the things that you will have to learn in peace-time so

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that when you are called upon to do them in actual service you will know how to go about them.

Form for Orders.—In framing up his orders the captain has followed the form that is laid down in the Field Service Regulations—a system of tactical orders that has stood the test of war.

When our army went to France in 1917, they found a complicated system of orders which went into great detail in prescribing just what was to be done. Dozens of typewritten sheets were required for the orders of the simplest maneuver or trench raid. When the Germans were driven out of their trench systems and into the open, events moved so swiftly that no one had time to read these voluminous orders. We came back to our own simple five-paragraph order. It stood the test of battle, and I doubt if we will ever deviate from it again.

If you will learn the system thoroughly and apply it in every case, you cannot go far wrong in writing or giving your tactical orders. The system applies, be the order for a platoon or for a division.

Posting the Outpost.—Lieutenant A, with the first platoon, has been designated to cover the posting of the outguards. How is he going about his job? Just what is it necessary for him to do?

There are two systems by which this covering force may accomplish its mission:

1. It may deploy in a line of skirmishers at greatly extended intervals.

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2. It may cover the front with a number of small patrols.

No hard-and-fast rule that will cover all contingencies can be laid down. The first method has the disadvantage of making control of the men very difficult. The second method has the advantage of having each group directly under the control of a leader, so that, in case the enemy's patrols are encountered, there can be concert of action instead of depending upon the decision of individual men as to what is to be done in the emergency.

Let us assume that the patrol system is to be used. How does Lieutenant A go about getting his men into formation to carry out his job?

The platoon is at the position of the support. They are ready to go. Lieutenant A says:

"*Fall out. Take off your packs and put them in squad piles over there*" (indicating the place). "*Put your bayonets on your belts. Then fall in your proper places.*"

When the men are again assembled, he calls the platoon to *attention* and makes a hurried inspection to see if everything is all right.

The platoon is then marched out to where the general line has been designated by the captain for the outpost, where it is halted, and Lieutenant A gives his orders.

It is necessary that all the men have a knowledge of what is being done. They should know all about the enemy. They ought to know what our own troops

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are doing and what they are going to do themselves—all of this in order that they may go about their work intelligently.

The platoon commander will give the men the information of the enemy and outline the dispositions of the outpost.

He then states his plan to cover the posting of the outguards:

"*This platoon will cover the posting of the outguards along this line* (*indicating*). *All patrols will advance at least* 1,200 *yards to the front. Remain out until you receive orders to withdraw.*"

The next thing to be provided for is the detailed disposition of the patrols. Where they are to go.

Corporal D, take your squad and move out to the right oblique in the direction of that ..... (*indicating some point that is easily recognized by the squad leader*). *There will be no other troops on your right.*"

The other two squads of the first section are sent out in the same manner; one to the front directly and the other to the left oblique.

Lieutenant A will want a part of the platoon for a local reserve which may be employed to reinforce any of the patrols that may get into more trouble than they can handle alone. He holds out the second section for this purpose. It will follow the center squad at a suitable distance. This is then provided for:

"*The second section will constitute the reserve and follow the second squad at a distance of* ——— *yards.*

"*I will march with the reserve.*"

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The platoon commander will then direct the squad leaders:

"Take charge of your patrols and move out."

Where the outpost is extended over a wide front it may be a better arrangement to let each support cover the posting of its own outguards. In this case each of the outguard platoons would have to use one section to do the work.

The next element of the outpost that demands our attention is the supports. The captain has detailed the second platoon as support No. 1, covering the approaches from the east and north.

The Supports.—Lieutenant B will march his platoon out to the point designated by the captain and will here give his orders.

The same rule about letting all the men know what is being done applies as in the case of the first platoon. The platoon commander will give the men all the information of the enemy and of our own troops. He will follow with his general plan.

"This platoon will form support No. 1, which, posted at road fork (a), will cover the approaches from the east and north."

Lieutenant B will now have to decide upon the location of his outguards. He must remember that the captain has said in his order, "In case of attack, the outguards will be supported." This places the fighting line of the outpost along the line of outguards. It makes the choice of their location doubly important. Under the conditions imposed, what are the elements that effect the location of the outguards?

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In the first place, they must be located on and command a route along which the enemy may advance. There must be a good field of fire to the front and flanks. In the second place the location should be naturally strong or should be capable of being strengthened by the construction of artificial cover from view and fire, and it must be so far concealed that the enemy cannot discover it without attacking.

Having these considerations in mind, Lieutenant B makes a decision as to where he will post his outguards tentatively and gives his instructions.

"*Corporal M, with the first squad, will form outguard No.* 1, *which, posted on the main road* 300 *yards east of road fork* (*a*), *will cover the approach from the east.*

"*Corporal N, with the second squad, will form outguard No.* 2, *which, posted on the main road* 300 *yards north of road fork* (*a*), *will cover the approach from the north.*

"*Corporal O, with the third squad, will form outguard No.* 3, *which, posted just south of the saddle* 300 *yards northwest of road fork* (*a*), *will cover the approaches along the stream from the north.*"

The next point for consideration is: What is to be done with the remainder of the platoon? Lieutenant B provides for this by designating it as the support.

"*The second section will be posted at road fork* (*a*) *as support. In case of attack the outguards will be supported.*"

The administrative arrangements follow. If not provided for, one of the first questions asked would be:

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"Where do we eat?" The captain has covered this in his order.

In the field, the cooking is usually done at the company rolling kitchen. The platoon details go there and procure the food for the men of the platoon.

"Cooking will be done at the reserve. The food will be brought here and distributed to the outguards.

"Send messages to the support. Sergeant R, second in command."

This order is sufficient to get everybody started on their jobs. There are many other details to be arranged, such as providing for interior guard, the arrangements for assembling the support in case of alarm, the detail of visiting patrols, communication with the other support, with the reserve and with the outguards. Most of these things will be attended to by the platoon sergeant while the platoon commander is out making his first inspection of the outguards.

Posting the Outguard.—The posting of the outguard is the next question we have to deal with in the arrangement of the outpost. Let us take outguard No. 1. Corporal M marches his squad out to the place designated by the platoon commander and selects a point where the main body of the outguard is to be posted. In this process of selection, he must consider: Is the position naturally strong? If not, can it be made so with a reasonable amount of labor? Is there a good field of fire to the front and obliquely to the flanks? Can obstacles be placed so as to check the advance of the enemy and hold it under the fire of the outguard?

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Is there any ground in front within range that commands the position? Are there good approaches to the points selected for the sentinels? Is it possible to provide for mutual supporting fire with adjacent outguards? Are there good communications with the adjoining outguards and to the main body of the support?

All of these elements will be considered, and while it is not contemplated that a position will be found that will fulfil all of them, the position that satisfies the greatest number will be selected.

Selection of Posts.—The selection of the sentinel posts will now occupy the attention of Corporal M.

By day, the sentinel must be able to see the whole of the ground allotted to him for observation. He should have sufficient cover, so that the enemy's patrols will not be able to locate him. He should have good communication with the outguard.

Excellent observation posts will sometimes be found in trees, one of the sentinels of the double-sentinel post being located in the tree and the other on the ground near the foot of the tree.

It may be that the best location for observation is also the best for fighting, in which case the sentinels may be located on or very near the actual locality to be defended by the outguard.

The posting of sentinels includes giving them their orders. These will include the information of the enemy and our own troops. This latter will include the local patrols that have been sent out, the location of

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adjoining outguards and sentinel posts. Each sentinel should be given the number of his own post and the number of the outguard from which he is posted. They will be informed as to the points to which the roads and trails in sight lead, and, if practicable, the names of important topographical points in sight. The countersign, if one is used, will be given.

Instructions for Sentinels.—The mistake of giving sentinels too many orders will be carefully avoided. If their minds are burdened with too many details, they are likely to become hesitating, timid and confused.

The controlling idea is that they should know where to look for the enemy and know what to do when they see him.

Here are a few rules for the guidance of a sentinel on post:

1. He must watch and listen without betraying his presence. Observation is the first consideration, concealment of secondary importance.

2. He must not smoke, and matches must not be lighted at night.

3. Such conversation as is necessary must be conducted in subdued tones.

4. Persons arrested will usually be held until a patrol comes out to take charge of them.

5. He will not allow his vigilance to be disturbed by the requirements of military courtesy. He pays no compliments and does not salute officers unless addressed by them.

6. Whenever he sees anything suspicious he must

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report it to the outguard commander. Especial care will be taken to report any indications of the enemy's approach. If he is satisfied that the enemy is advancing to the attack, the alarm may be given by firing. When immediate alarm is not necessary, firing should be avoided.

We have considered the posting of the outpost from the reserve to the sentinels. You see what must be done. These are the things that you will have to do in service. You will have to do them along the lines that I have indicated. There may be other ways but these have been found by experience to be the best. They have stood the test. You will do well to familiarize yourself with the methods I have tried to show you and stick to them. You cannot go far wrong if you do. Military tactics is four-fifths common-sense. Use your head. Figure out what you want to do and then do it. Don't go blundering blindly about. Size up the situation calmly. Consider your mission. Consider what the enemy is likely to do. Consider the country over which you are working. Consider what you can do to circumvent him.

Then arrive at a decision as to what you are going to do. Put this decision in the form of definite orders and then *stick* to it.

With this process and technic you can't go far wrong.

SYNOPSIS OF TALK

Body of troops surprises; How prevent; Protection by system of outposts; Compare to advance guard on march; Division of

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outpost; Line of observation; Line of resistance; Requirements of line of resistance; Line of observation; Example: Line along edge of woods; Strength of outpost; Limited to necessities; Formation of outpost; Outstretched hand; Main body; Reserve; Supports; Outguards; Sentinels; Explanation; Outguards; Pickets; Sentry squads; Cossack posts; Double sentinel post from each squad; How outpost meets enemy; Use of reserves; Supports when reserve is omitted; Procedure; Major's order; Captain's order; Information of the enemy and our own troops; Plan of commander; Tactical dispositions; Covering posting of outguards; Necessity for; Orders for supports; Location; Function; Order for detached Posts; Necessity for; Duties; Orders for reserve; Duties; Meet enemy main attack; Counter attack; Action in case of attack; When outguards supported; When fighting line is on supports; Messing arrangements; Necessity for indicating; Place of Commander; Explain; Second in command; Necessity for sticking to form of orders; Example of field orders in War with Germany; Posting the outpost; Covering troops; Line of skirmishers; Patrols; Preliminary arrangements; Five paragraph order; Posting of supports; Elements governing location; Field of fire; Defensibility; Orders for outguards; Commander; Troops; Location; Instructions; Orders for the outguard main body; Details of messing arrangements; Place of commander; Second in command; Other arrangements; Interior guard; Assembly; Visiting patrols; Liaison; Posting of outguards; Location; Defensibility; Field of fire; Obstacles; Commanding ground in range; Communications; Selection of sentinel posts; Requirements; Observation; Concealment; Use of trees; Orders for sentinels; Information of enemy; Own troops (especially patrols); Number and post of outguard; Location of adjoining posts; Names of topographic features; Places in view; Know where to look for enemy and what to do if see him; Rules for sentinels; Watch and listen; Not smoke; Persons arrested; Military courtesy; Reports to be made; Point out necessity for training in minor tactics in time of peace.

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SCOUTING AND PATROLLING

The subject of Scouting and Patrolling enters into every line of endeavor included in the domain of minor tactics.

The point of the advance guard is nothing more or less than a combat patrol—the head of a battering ram that pushes forward and brushes aside the enemy. The feelers that we call flanking and brushes aside the enemy. The feelers that we call flanking parties sent out to the flanks of a column of troops on the march are also combat patrols. As a matter of fact, most flank guards resolve themselves into strong patrols.

The outguards of an outpost line are mere stationary patrols sent out from the supports to watch out for the enemy and fight him off until the supports can get ready to receive him. The detachments sent out to cover the posting of an outpost are split up into patrols to facilitate their work and retain control over their operations.

The advance of troops in combat is covered by a thin irregular line of patrols. Communication between the different organizations in a fight is kept up by small patrols sent out for the purpose of keeping in touch.

Information of the movements of the enemy is secured by the operations of the reconnoitering patrol.

In warfare of position it is the patrol that penetrates into the enemy's lines at night and brings back the information upon which we base our plans of operation.

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All of this has been pointed out to you in order that you may have an appreciation of the importance of patrolling and how intimately it links up with every phase of military activity.

A member of a patrol is technically called a "Scout" —that favorite hero of romance. The very name carries with it a romantic idea of a man of exceptional courage and resource. A man who has been especially selected from among his fellow men as being a real he-man.

The platoon commander is especially interested in the training and development of his scouts. They are the men upon whom he depends to secure and bring to him the information on which he may base his plans for circumventing and defeating the enemy.

Qualifications of the Scout.—What special qualifications must a man possess to be successful as a scout? In the first place he must be physically fit. This implies that he must have eyesight good enough to enable him to see and distinguish objects of military importance at a distance. He must have good hearing, for much of his work will have to be done at night when this sense is of far more value than any other. He must have large feet in proportion to his size and weight—the heavy man with small feet is at a great disadvantage in getting over rough country such as our modern warfare scout will have to traverse. He must possess litheness and agility to permit quick movement from place to place, scale barriers and climb trees and other vantage points for observation. A man who is subject

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to a recurrence of venereal disease is valueless as a scout. There's always something the matter with him when you want important work done.

Our scout must be intelligent and trustworthy. With respect to the former, a man is of little value as a scout unless he possesses sufficient intelligence to be able to impart to others, by means of a message or orally, the information that he has been able to secure about the enemy. As to the latter, a man who is addicted to drink, or will allow himself to take a drink while on duty or is otherwise undependable is not suited. Scouting and drinking positively will not mix.

He must be able to ride a horse and bicycle and be able to swim. These accomplishments will stand him in good stead when he is in a hurry to get back with information. The ability to swim may be the means of saving many miles of detour in looking for a ford or seeking the means of effecting the passage of a stream, or may be the means of escaping with valuable information if the hostile pursuit is close.

He must be able to read and write. The scout may in the course of his operations, come across many documents containing valuable information. He must be able to read their contents so as to be able to separate the valuable from the worthless.

Much information that he will secure will have to be transmitted back to officers by means of written messages. The ability to write a clear and legible hand is necessary.

He must be resourceful. He must have plenty of

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that "never-say-die" quality that we Americans call "pep," and must not be afraid to accept responsibility. When he is out alone, his orders run out, and there is no one at hand to tell him what to do, he must not stop or hesitate. He must know what to do and how to do it. These are the qualifications that the scout must possess in his makeup. Do you wonder at our looking upon him as the super-man? Every man should feel proud of himself for having been selected as a scout by the platoon commander who really knows his business.

A man possessing the qualities that I have enumerated can be taught the other things that qualify him as a scout. These include map reading to a sufficient degree to enable him to orient a map, find his own position and locate that of the enemy on it. He must understand elementary field sketching, how to write messages and how to signal. He must have a knowledge of security and information, including the combined operations of a party of scouts called a patrol. He must know the best methods of effecting the reconnaissance of different features of the terrain and of the enemy and he should have some knowledge of first aid.

These are all very simple and can be mastered easily.

Now there are other qualities that the scout must cultivate in himself. Among these may be included courage and self-confidence, the ability to find his way over unfamiliar country, that is, an eye for ground, and the art of concealment.

Many men fail to measure up to all of these requirements because they only try to learn what they are

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shown. They lack the ambition to practice on their own hook. The successful platoon commander is he who is able to imbue his men with the idea that they must constantly practice the things that they will be called upon to do in active service. This is especially the case in the training of scouts. You take the man who knows the principles of scouting and patrolling and he will constantly apply them in his daily duty and training. Every piece of ground will have some military significance to him. He will soon get to picture in his mind the solution of problems that may come up to him for solution as a scout. This is the point you have to reach to be a really efficient scout.

The Patrol.—In military operations the question will always arise as to whether or not it is best for a given mission to employ scouts or to employ a patrol.

There are no hard-and-fast rules that may be invoked in arriving at a decision in the matter; but there are certain principles that may be applied.

The scout or pair of scouts would, as a rule, be preferred when concealment is highly essential and, usually, when concealment, though not essential, is possible throughout the reconnaissance. When the enemy habitually conducts his reconnaissisance with strong patrols, scouts have a better chance of eluding them.

Here are some of the instances in which patrols should be used. When information in the form of messages has to be sent in at intervals; when it is desired to capture prisoners; when concealment is

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deemed impossible; when the reconnaissance has to be extended over such a period of time that the scouts have to be relieved; when an urgent mission has been assigned and it is necessary to push through the enemy's covering troops.

Whenever possible the preference of the more efficient scouts should be given consideration. Some men lose self-confidence when attached to a patrol and are limited in their action by the patrol leader, others dislike the responsibility of uncontrolled action.

In some cases it may be advisable to employ a patrol formation for a part of the way and at a certain point break up into scouting parties of single scouts or pairs of scouts.

Duties.—The first duty of the combat patrol is to fight off the enemy and prevent him from carrying out his mission of getting information about our troops.

The first duty of the reconnoitering patrol is to secure information of the enemy and this information increases greatly in value if the enemy does not know that it has been obtained. A patrol is sent out primarily to find out whether or not the enemy is in a certain locality. This information is only useful to the officer who sends out the patrol. It is therefore the duty of second importance for the patrol to get the information back as soon as possible.

Next of importance is to remain in observation of the enemy when once discovered. Keep in contact with him and report his every move.

Strength.—The strength of the patrol depends upon

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the mission and the probable number of messages that will have to be sent back.

A greater number than is necessary is simply a drag on the patrol commander—a handicap to him. If the patrol is too weak the enemy may defeat it by lying in ambush and allowing the men to walk into them, whereas they would avoid a stronger patrol.

A patrol consisting of a leader and six scouts seems to be very appropriate for the ordinary reconnaissance work. This allows for an advance man, a man for each flank, one for the get-away man and two to march near the patrol leader as main body. These latter may be employed to relieve the covering man who may have reports to bring in, or they may be employed to carry messages back.

Composition.—The ideal patrol is composed of trained individual scouts commanded by an officer or noncommissioned officer who is himself a trained scout.

Commander.—The patrol commander must have rank in order that he may have authority. His decisions must be final. Instances frequently arise when it is necessary to impart to the leader of a patrol information of a highly secret nature, information which can only be trusted to an officer or noncommissioned officer of proved discretion.

Instructions to the Patrol.—Officers who send out patrols should give them instructions which should include:

First. All available information of the enemy and information of our own troops, especially with respect to any other patrols that may be operating to the front.

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Second. The mission of the patrol, that is, the general direction in which it is to go, and the object for which the patrol is being sent out.

Third. How long the patrol is to remain out, as definitely as this can be determined in advance.

Fourth. Where messages are to be sent.

These instructions may take the following form which would be modified in every case to meet the tactical situation existing at the time.

Lieutenant, to patrol leader: "A detachment of the enemy bivouacked last night at (*a*). Small parties are suspected in the vicinity of (*b*). Sergeant B's patrol is moving along the (*c–d*) trail and will cover the country to the south thereof. You will take this patrol of six men and move out in the direction of (*a*), verify the presence of the enemy and report his movements. Remain out until darkness prevents further reconnaissance. Send reports to me at Support No. 2."

Before starting out the patrol commander has certain things to do. In the first place he must make an inspection of his patrol to see if all the men have their proper equipment and that they are in proper condition physically for patrol duty. The next thing he has to do is inform the men of the mission of the patrol and what he intends to do. This is best accomplished in an order which would be something like this:

Patrol leader to members of his patrol: "A detachment of the enemy bivouacked last night at (*a*). Small parties are suspected in the vicinity of (*b*). Another patrol is moving along the (*c–d*) trail and will cover the country to the south."

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"We are going out in the direction of (*a*) to find out what we can about the enemy."

"I will direct the formation, the route and the assembly points as we go along."

"Drill regulation signals will be used."

"Messages will be brought here. Jones, you will be second in command."

With Ball Cartridges, Load.

Then turning to the Lieutenant the patrol leader will inquire, "What time has the Lieutenant?" He sets his watch to agree, and directs: "All men who have watches, set them at ———." Leading the way, he commands, *Follow me.*

Formation.—It is impossible to lay down any hard-and-fast rules for the formation and conduct of the operations of a patrol. Each situation will have to be worked out as it presents itself. Each solution will vary with the topography of the country over which you are passing, the object of the reconnaissance and the action of the enemy.

The patrol leader, as he advances towards his objective, should make mental note of the various intermediate objectives which serve as stepping stones for his further advance. He can never be certain where he will encounter the enemy. He must be prepared at all times for such an event and must have a plan of action in his mind ready to spring.

If the patrol advances in one body, a hostile patrol will allow them to approach and then ambuscade and capture them. Further than this, the patrol as a whole

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would be able to see but little more than a single man. If the patrol advances in an extended line of skirmishers, surprise or capture is rendered much more difficult, but each man will be operating more or less independently and it will be very difficult for the patrol leader to control operations.

The patrol should assume the general formation of a column on the march, that is, an advance guard, a main body, flankers, and a rear guard. Each of these several elements may be represented by a single man only, but the principles are exactly the same.

The advance man is necessary to give warning of the approach of the enemy. The flankers are necessary to watch towards the flanks and for preventing the enemy from ambuscading the patrol or working around to its rear

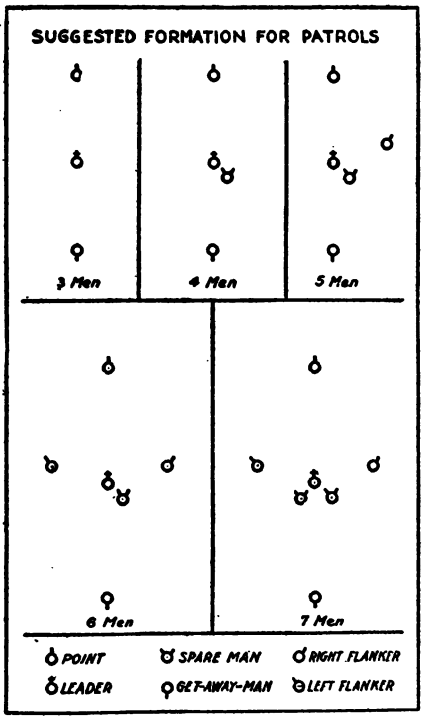

FIG. 1.

This plate is taken from "Scouting and Patrolling" and is here inserted for the information of the student. The instructor should draw these formations on the blackboard and point out the different elements. Especial attention should be called to the formation of the leader and six man patrol.

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unobserved and cutting off its line of retreat. The main body is necessary to back up the advance man and protect him. The rear man is the "get-away" man, so that in case the patrol is fired into or captured, at least one man will have a good chance to escape and carry the news back to the officer who sent out the patrol.

A patrol that goes out and does not return on time or is not heard from causes great uneasiness and apprehension at headquarters.

Some authorities advocate that the patrol commander march as the advance man of the patrol. This is not believed to be good practice. He should be centrally located so that he may be able to control the operations of the patrol.

Moreover, the patrol leader has been selected for his excellence in this particular line of work. The officer who sent him out is depending on him to carry out the mission on which he has been sent and to get information back. He should not, therefore, make himself a target for an enemy sniper who may be lying in concealment at the turn of a road or trail. Further, if he is the leading man he will be so busily occupied with the task of observation that he will have little time available for conducting the movements of the other men of the patrol. If anything happens at the front that requires his attention he can go there in a very short space of time.

The formation of the patrol must be elastic. The various elements should be able temporarily to diverge or alter speed without throwing the formation out of gear. A flank scout cannot carry out his duties if he is

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obliged to conform rigidly to the movements of the main body of the patrol. He must conform generally to the movements of the commander. That is all that should be required of him.

When a small patrol is advancing along a road or trail which is more or less winding and has brush and trees along the sides, the "Boni Point" formation will generally meet all requirements. In this formation, the leading man walks along one side of the road close to the vegetation. The next man follows him at a distance of about 25 yards, marching on the opposite side of the road. The remaining men follow at varying distances on alternate sides of the road. The rear or "get-away" man follows his next preceding man at a distance of 75 yards. Flankers are sent out when necessary and where it is possible to do so.

You will be surprised to see how admirably this formation will meet the situation under the conditions stated. The next time you are out on a winding road through the woods, step over to one side and observe to the front. Then go to the other side and repeat the operation. You will find that from one side your view will be very much restricted, while from the other side it will be very much more extended. One trial will convince you of the suitability of this formation.

Communication.—Ordinary communication between the patrol leader and the members of his patrol is carried on by means of signals. These signals are prescribed in the Infantry Drill Regulations. Every scout should be

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entirely familiar with them. No formation, however, is entirely satisfactory which does not provide for verbal communication between the patrol leader and his scouts.

No set of signals has been devised that will convey the details of information and it is often in the details that the importance lies. The following system has been used effectively:

In case the detached scout has information which he desires to impart to the patrol leader he signals "*Have important Information*" (The signal for this is to "extend the arms laterally to their full extent," the same as the signal for "As Skirmishers.")

The patrol commander either joins the scout to make observations for himself or sends one of his spare men to relieve the scout and let him come in with the information. This scout then becomes a spare man until it becomes necessary to send him out to the relief of another scout. This system gives complete communication throughout the patrol at all times at a great saving of time and effort.

Conduct of the Patrol.—The patrol moves in proper formation, cautiously but not timidly, taking advantage of all available cover. It seeks in every way to see without being seen. It halts frequently to make a careful survey of the surroundings.

As the patrol advances, each scout makes note of various landmarks to enable him to find his own way back. The experienced scout will always keep in mind the possibility of meeting the enemy and will have a plan of action in his mind ready to put into operation.

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Except at night the patrol should not move on roads. Villages and inhabited places are as a rule not entered. This does not mean that these should be neglected. On the contrary, important roads are the ones that must be most carefully watched for they are the routes that will be followed by any force of the enemy really worth reporting.

The patrol should not halt for a prolonged rest before its return unless circumstances make it absolutely necessary to do so. In such case it should rest in concealment in some place that offers advantages for defense and from which a retreat may be easily effected. The position chosen should not be near any habitation.

Encountering the Enemy.—The real work of the patrol begins when it gets in touch with the enemy. All other formations and methods are merely means by which the patrol may be enabled to reach a point where information of real value may be obtained. The commander wants information of the enemy's forces, his numbers, the kind of troops, where he is and what he is doing.

If a small patrol is encountered it is generally better to remain in concealment and let it pass, than to attack. The capture of an entire patrol, advancing in proper formation, is a most difficult operation. Ordinarily it cannot be accomplished without firing.

This matter of avoiding an enemy patrol is much easier said than done. We must give the enemy patrol credit for being on the alert and having such a knowledge of minor tactics that he will do the reasonably proper thing. If he sees a member of our patrol the

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difficulty of avoiding him will be doubly increased. Some of the members of the patrol will probably have to fall back or move to a flank a short distance to get to cover. The decision will have to be made quickly and the signals transmitted to each detached scout, who will have to work out the solution to the problem for himself.

If the patrol is suddenly attacked or surprised by a superior force it must scatter in all directions and each should make his way independently to the place last indicated as an assembly place, thereafter uniting and continuing the reconnaissance. "Never quit a reconnaissance until some result has been obtained," should be the invariable rule.

When our patrol discovers a hostile patrol and the patrol leader has little doubt that the enemy has seen his men, he should continue his forward movement by a covered approach, endeavoring if possible, to gain the flank or rear of the hostile patrol.

He should do nothing to indicate to the enemy that he has been seen. If the patrol has to cross an open patch of ground under such circumstances, they should do so at a rapid pace and in extended order so that if the enemy should open fire he will at least have a poor target.

Having gained a covered locality, the patrol will move rapidly to a flank, approach the enemy's patrol from an unexpected direction and endeavor to ambuscade it or at least force it to retire. The objects of great secrecy no longer exists because the enemy has

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seen our men and it is desirable to keep him busy in this locality, away from our own lines, and prevent him from sending back information.

If, despite all precautions that have been taken, the patrol falls into an ambuscade, it should attack boldly. Courage and coolness may wrest success under the most adverse circumstances.

Observation of the Enemy.—When the patrol has discovered a force of the enemy worth while reporting, the dispositions must be such as to permit the patrol leader to make his observation of the hostile force in comparative security. With this object in view he must get to a vantage point from which he may gain a good view. The remaining members of the patrol must be so disposed as to guard all avenues of approach in order to prevent surprise. The number of observers allowed to look out should be limited. The remaining members of the patrol should be carefully concealed.

The lookout men must expose themselves more or less to obtain a good view and the more men that are thus employed the greater the risk of detection.

It is the natural tendency of every man on dangerous service to keep a lookout for himself, but it is the duty of the patrol leader to make the necessary dispositions for observation and security and to insure that all unemployed men keep under cover and are not craning their necks to see, thus taking a chance on giving the position away.

When the patrol observes a considerable body of the enemy advancing towards the position of their own main

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body, it should open a perfect fusilade of fire. This is for the purpose not only of delaying the enemy but also of giving warning to our own troops in order that they may be prepared to meet the attack. There is no longer any necessity for secrecy and the more noise the patrol can make the better.

Night Operations.—The operations of the patrol at night varies considerably from those by day. This is especially the case when the night is dark or the country very close.

By day the hostile scout will be found occupying the high ground. At night he will reverse his position and seek the low places so as to be able to observe persons on the sky line.

Any considerable movement of the enemy will be confined to the roads and well defined trails. If he wanders far from these, his operations will be so hampered that he will be able to accomplish little.

If the patrol advances boldly down the road or trail, they will simply run into the enemy without any warning and any information obtained will be incomplete because the patrol leader will not know whether he has struck an isolated patrol, the point of a large force or a patrolling post sent out from the enemy's outpost line.

Therefore, the patrol should use the road or trail only as a line of direction and not march on it themselves.

When conditions make it necessary to use a road at night, the patrol should keep close together with one part advancing while the other part is listening. This

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may be accomplished by sending two men forward, say, 20 or 30 yards. When they report "all clear" the remainder of the patrol joins them. This operation is constantly repeated.

The same procedure may be reversed when the patrol is retiring at night.

When it is found necessary to reconnoiter to the flanks the patrol is halted until the reconnaissance is completed.

Both for safety and for concealment, the patrol at night keeps close together. In the darkness, the group offers a very little better target than does an individual, and accurate fire is not to be anticipated. In any sudden encounter at close quarters, there is a tactical advantage in concentration.

Remaining Out over Night.—If the patrol has to remain out over night, the location of the bivouac should be selected before dusk, but should not be occupied until after dark. After selecting a suitable spot, the patrol should continue its operations for a time and then as soon as it is dark make its way back to the bivouac. This is done in order to deceive the enemy's scouts who may have had the patrol under observation.

It is generally unsafe to light fires at night. Smoking and the striking of matches are positively taboo. The former not only makes a glow that can be seen for several hundred yards, but the odor of tobacco may be distinguished at a considerable distance.

These are some of the things that you have to

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know about patrolling. These are the things that you have to learn about in peace times so that you will be able to do them in time of war. Any man may be called upon to lead a patrol. If he does not know how to do it, he may sacrifice the lives of his men to no purpose.

SYNOPSIS OF TALK

Patrols; Point of advance guard; Flankers; Flank guard; Outguards; Covering troops; Combat; Reconnoitering patrol; Importance of patrolling; Definition of scout; Qualification of scouts; Physical; Eyesight; Hearing; Feet; Agile; Venereal disease; Intelligence; Trustworthy; Booze; Read and write; Resourceful; Map reading; Sketching; Courage; Self-confidence; Failure to qualify; The patrol, employment of; Duties; Combat; Reconnoitering; Strength; Explain advantages of six-man patrol; Composition; Commander; Rank; Instructions; Information of enemy and own troops; Mission; How long to stay out; Messages; Orders; Inspection; Patrol commander's orders to patrol; Formation; Column on the march; Location of patrol leader; Boni Point formation; Communication; Signals; Have important information; Conduct of patrol; Cover; Use of roads; Entering villages; Halt for rest; Encountering the enemy; Small patrol; Surprise; Avoiding enemy patrols; Ambuscade; Observation of enemy; Dispositions of patrol; Approach of enemy; Night operations; Sky line; Confined to roads; Method of advance; Remaining out over night; Location of bivouac; Fires; Smoking; Necessity for training.

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COMBAT

The infantry platoon is the unit of combat. It is the smallest infantry unit that is deployed in depth and endowed with the powers of independent maneuver. It is the largest infantry unit admitting of personal leadership and fire control in combat.

Let us examine into the organization and functions of this important basic unit.

Organization.—There is a platoon headquarters proper consisting of the platoon leader, the platoon sergeant and four runners. There are six squads, divided into two sections of three squads each. For each section there is a section leader who acts as platoon guide when the platoon is united, and a corporal who is the section guide when the section is operating as a unit.

Equipment.—Each squad of the platoon consists of a corporal (squad leader), six riflemen and one automatic rifleman. One rifleman is equipped with a tromblon or grenade discharger. One rifleman is especially designated to carry additional ammunition for the automatic rifle and serve as a replacement for the automatic rifleman. All of the members of the squad carry a certain amount of extra ammunition for the automatic rifle and, when necessary, rifle and hand grenades.

Training.—All the men of the squad are uniformly trained in the use of all weapons. The automatic rifleman and his replacement are especially trained in the use and employment of the automatic rifle. The rifle grenadier is specially trained in the use of the rifle

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grenade and of his weapon. Two riflemen from each squad are specially trained in the duties of scouts.

Formation.—After the organization of the squad has been permanently fixed, numbers 1 of the front and rear rank, number 2 rear rank and number 4 rear rank are riflemen; number 2 of the front rank carries the grenade discharger; number 3 of the rear rank is the automatic rifleman and number 3 of the front rank is his replacement. The corporal—squad leader—is posted as number 4 of the front rank.

Platoon Tactics.—The tactics of the infantry platoon in attack resolve themselves, in the majority of cases, into the attack of tactical points. These consist of localities which may be of prime importance to either side, the possession of which may have more or less influence on the outcome of the fight. They take the form of what is technically known as a "strong point"—a piece of ground furnishing an advantageous fire position or vantage point for observation. They may consist of an embankment, cut, a house, the corner of a destroyed village, a hedge, or any locality of limited dimensions.

These tactical points are usually occupied by machine guns supported by snipers and, when organized into a system of defense, they are generally arranged in checkerboard fashion in such manner that they furnish mutual support for one another.

Operations of an Infantry Platoon.—Now let us take up the operations of an infantry platoon engaged in locating and making an attack against one of these tactical points. Let us see what formation it takes up.

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How it goes about locating its objective. How it carries out the attack against it.

Formation.—The platoon is formed in two echelons or waves, a section of three squads in each. The leading wave is spread out into a line of skirmishers, with intervals of from five to ten paces between the men. The rear wave may be deployed in the same fashion or may be in a line of small columns—what we know as a line of squad columns, in which each squad is arranged in column of files with the men behind one another or echeloned in staggered formation. (The instructor will illustrate the staggered formation of the squad column on the blackboard.)

How does our platoon locate the enemy? Out in front of the leading section there is an irregular line of scouts, two from each squad. These are deployed at greatly extended intervals covering the front of the whole section. Their distance ahead varies with the progress of the advance. At one time they may be 500 yards ahead of the platoon. Later they may be absorbed in the firing line itself.

They are the feelers sent out for the purpose of compelling the enemy's infantry and machine gunners to open fire and disclose their location.

The platoon leader, with his runners, is out in front of the leading section, between the scouts and the skirmish line. He is where he can see for himself the location of the enemy tactical points as they are made by his scouts to disclose themselves. Based on this observation, he is able to formulate his plan of action.

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Let us picture the situation that confronted our American First Army in the battle of the Meuse-Argonne, during the closing days of that gigantic struggle. The enemy has been driven from the prepared trench system that he has occupied for months. He is retreating but putting up a dogged resistance, with machine guns and infantry, wherever it is possible to do so. It is open warfare as distinguished from the old warfare of position, which was the rule on the western front for nearly four years. Only such hasty field fortifications as may be prepared in a limited time are available. Our troops are right after him wherever he may be found.

Our platoon is advancing in the formation that I have just described. The scouts are about 500 yards in advance of the leading wave. To the front is the edge of a woods where it is suspected that the enemy has organized another defensive line.

How are we going to develop the position? The scouts, operating in pairs, one covering the advance of the other, work up towards the edge of the woods.

They finally locate what they suspect to be a machine-gun nest. By a combination of fire and movement they compel the enemy to open fire on them and thus disclose his position.

The location is indicated to the platoon leader and perhaps to the men in the leading wave by means of tracer bullets fired by the scouts.

The platoon commander decides to attack at once. Enough men from the leading wave work their way

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forward to the line of scouts to give it fire power sufficient to pin the enemy to the ground and hold him there. This filtration from the section to the line of scouts is made by a series of short rushes.

An automatic rifleman and his carrier work forward towards the flank to a position from which they can bring the automatic rifle to bear on the machine-gun nest. Rifle grenadiers also work their way forward. The section and squad leaders direct the movement. Advantage is taken of all available cover.

The Second Section.—In the meantime, what is the second section doing? The second section is a maneuver unit in the hands of the platoon leader. As such, it may be employed to envelop the hostile resistance. In this case it may be divided. One part of two squads is sent around to the left because the platoon commander has decided that there is likely to be less resistance in that direction and that more cover is available. The remaining squad is sent around to the right. It may be that one squad would go around each flank and one be sent directly to the front to reinforce the leading section.

No hard and fast rules can be laid down as to just how the second section is to be deployed and used. It all depends upon the tactical situation that is encountered.

The big idea is that the platoon pushes on to the objective with the fixed determination of closing in with the bayonet as soon as possible.

Under the covering fire of the second section and

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the flanking fire of the automatics of the first section, the riflemen work their way to the front and either destroy the enemy or force him to abandon his position or to surrender.

In the meantime, other enemy tactical points may assist the defenders of the threatened point with their fire. In this connection it must be remembered that we have other platoons on the right and one on the left doing the same thing that we are. They are operating against the points of resistance in their front just as we are and it is fair to assume that they will keep the enemy just as busy as we are keeping him.

The danger to our platoon lies in the fire of other enemy tactical points that may be located to the rear and flank of the machine-gun nest we are attacking. Such points will have to be covered by the fire of squads of the second section which is working around the flanks.

It may be that our platoon will be able to break down the hostile resistance and carry out its mission unaided. If the resistance is so strong that other agencies are required to overcome it, the platoon commander will call upon the auxiliary arms.

There is with the assaulting battalion a machine-gun company of twelve guns. Two to four of these guns may be allotted to our platoon. Other auxiliary weapons that may be called upon to assist are the 37-millimeter guns, the light mortars, and the accompanying artillery. All of these have their peculiar methods of fire and can be used to advantage.

Capture of Tactical Point.—As soon as the enemy's

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position has been captured, the leader will reform and get his platoon well in hand. The advance is resumed as soon as possible.

A platoon having finished one job of this kind is not justified in stopping and resting on its laurels.

To defeat an enemy who is making a determined resistance means the overcoming of many such tactical points. Our platoon must keep going. It must give the enemy no time or opportunity to recover and reorganize. A resolute attack by a determined platoon may result in breaking through the enemy's line and opening up a gap through which other units may filter and attack the flanks of the points still holding out. This plan must ever be in the mind of the platoon commander. He must remember that the fight is taking place along the whole battle front. His is only a small portion of it. How the action of his small platoon may affect the action as a whole no man can tell. The resolute attack of a platoon may turn the whole tide of battle.

History may repeat itself. We will always point with pride to the heroic struggle of determined American units under their determined leaders, a struggle which marked at Chateau Thierry the turning point of the greatest war of all history. Any platoon commander may have a like opportunity. How he gets away with it will be determined by his aggressiveness, his resolution, his determination to win and the way in which his troops carry out his plan of action.

If it be impossible to advance for the time being,

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under no circumstances must the ground be abandoned. The dogged resistance of small elements, clinging to the ground, will in most cases check all attempts at a counter-attack and will permit the offensive to be resumed. In one of the local conflicts of the battle of the Meuse-Argonne, a platoon commander managed to get his platoon into one of the most advantageous positions on the entire battle front. The Germans made an attack which he successfully repulsed. Instead of strengthening his position and holding on, he abandoned it because it was to his mind too far to the front to be supported. As soon as the position was abandoned the Germans occupied it. When it was decided that it was necessary to retake the position and the operation was carried out, it cost the Army many thousands of rounds of valuable ammunition and the lives of several hundred good Americans—all because one platoon commander did not appreciate what a prize he had taken.

Duties of Leaders.—Now let us inquire into the duties that devolve upon the several leaders charged with the conduct of an operation such as I have just explained to you.

The Platoon Leader.—He maintains the direction toward the objective. In this connection, it may be truthfully stated that more attacks fail from loss of direction than from any other cause. Every platoon leader must practice himself and his section leaders in using the compass in the selection of direction points. He sends out his scouts to locate and to indicate the

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location of the objective. He precedes the advance of his leading section in order to make a reconnaissance of the objective prior to opening fire. His ability is displayed by prompt reconnaissance of the ground and enemy, and by a rapid sizing up of the situation and an immediate and clean-cut decision upon a simple plan for the employment of his combined weapons and of the ground which enables him to close with the enemy. This plan usually includes pinning the enemy to the ground by frontal and flanking fire, under the cover of which some portion of the platoon can close with him by short rushes.

He maneuvers his second wave in support of the leading section so as to envelop or encircle the hostile resistance or to reinforce the leading wave.

These are the primary duties that devolve upon our platoon leader. His secondary duties include the control of the fire and movement of his men.

He keeps in communication with the company commander and with the units on the flanks. He prevents the exhaustion of the ammunition supply. He designates new leaders when necessary. He reforms the platoon after the hostile resistance has been overcome and takes steps to continue the advance.

The Platoon Sergeant.—The platoon sergeant is the assistant of the platoon leader. He is the second in command and, in the event of the platoon leader becoming a casualty, he replaces him. When the platoon is deployed in two waves, he maintains connection between the platoon commander and the second wave

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and prevents it from prematurely merging with the leading wave. He directs the engagement of the second wave when instructed by the platoon commander to do so or when the situation requires it.

The Section Leader.—The section leader directs the combination of fire and movement of his section. His eyes are fastened upon the enemy for the purpose of observing the fire effect his men are producing. He regulates the rate of fire, checks every breach of discipline. He is the rallying point for his section.

By his pace, bearing and aggressiveness he sets the standard for his unit. He leads his section when it rushes as a whole and supports adjacent sections by flanking fire.

The Section Guide.—He maintains the fire discipline of the section and keeps on the alert for the signals and commands of the platoon leader; this in order to allow the section leader to devote his attention to the enemy and observe the effect of the fire of the section. The primary duties of the section leader during fire, relate to the enemy; those of the section guide to the conduct of the section.

He replaces the section leader when the latter becomes a casualty.

When the section leader leads a rush the section guide follows the section, insures that all men join in the rush, and prevents straggling.

The Squad Leader.—He enforces the orders of the platoon and section leaders and maintains the discipline of his squad.

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When movement of infiltration is ordered, he selects the location of the new position and points it out to the squad. He leads the squad as a whole or sends it forward successively by individual rushes and recovers control in the new position.

He controls the fire and movement of the squad, transmits commands and signals, observes the conduct of his men. He participates in the firing when possible, and leads when the squad rushes as a unit.

The Scouts.—They move out to the front of their section and cover the advance. They operate as a patrol. They locate and open fire on hostile machine guns or the enemy wherever he is found.

They constitute the advance elements of a filtration into a gap in the enemy's front.

These are the duties that devolve upon infantry platoon leaders in combat. These are the things that you have to learn how to do in peace time so that you will do them instinctively in the din of battle when your bunkie is spitting out his lifeblood at your side, and when the nerves of men are strung to the point of breaking. These are the things that you must be able to do to step into the job above and put it over.

Night Operations.—Night operations are characterized by:

1. Decrease in the effectiveness of aimed fire and corresponding increase in the importance of means of close combat.

2. Difficulty in the maintenance of control and of

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contact and communication between units, with the consequent necessity for close formations.

3. Difficulty in the maintenance of direction.

4. Highly sensitive morale of troops with consequent increase in the importance of the effect of surprise on the part of the offense.

Night Combat.—A night attack may be made for the purpose of capturing an important tactical point, the possession of which is necessary for the operation to follow the next day. Again, it may be for the purpose of driving in an outpost. When the enemy is in retreat and protecting himself by comparatively weak rear guards heavily equipped with machine guns, a night attack will often offer the means of avoiding heavy losses that would be incident to a daylight attack, and may permit the attackers to close with the retreating forces.

Battle of the Meuse-Argonne.—This latter was the case with the Germans in the final stage of the battle of the Meuse-Argonne. Their rear guards would retreat during the first part of the day to a previously prepared position, heavily armed with machine guns, arranged in checkerboard fashion. The American troops would come upon this position, say, in the early afternoon. To rush one of these positions in the daytime would have meant ruinous losses. What happens? The scouts close with the forward element of the enemy and pin them to the ground. The accompanying guns are brought up and registered. The one-pounders, light mortars and machine guns are rushed to the front

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and all made ready for the affair. In the meantime the infantry works to the front and flanks of the forward machine-gun nests in the first line. They locate the normal lines of fire of the machine guns and take steps to avoid them in the attack.

At nightfall the combined attack is made. The artillery, one-pounders and light mortars fire on located targets. The machine guns put down a heavy barrage on the back areas and on located targets in order to keep the enemy down. The infantry closes with him, avoiding his lines of machine-gun fire and filtering through his "weak spots." This plan of operation was most successful. As a rule the entire rear guard was either destroyed or captured and, in almost every case, the enemy machine guns fell into our hands. The success of one of our leading combat divisions throughout this action was due to this method of fighting. From November 1 to 6, 1918, this division captured more than 500 German machine guns and advanced 26 kilometers. They killed and captured a total of 1,500 Germans, with a loss of about 1,100 of their own men killed, wounded and mising.

Time of Night Attacks.—When the enemy forces are intact and not demoralized, the time of night at which an attack should be made depends upon the object sought. If a decisive attack is intended, it will generally yield the best results if made shortly before daybreak, with a view to immediately following up the success obtained and exploiting the effect of the surprise to the maximum. If the object is merely to capture a tactical

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point for further operations, an earlier hour is necessary in order that the captured position may be organized under the cover of darkness. Moonlight is especially favorable to a night attack, as it greatly facilitates the movements of the attackers without materially increasing the efficiency of the fire of the defenders.

Reconnaissance.—The ground over which the attack is to be launched should be carefully reconnoitered by day and, if practicable, also at night. In this connection, the most favorable time for beginning the reconnaissance is shortly before dusk, thus permitting of continuing it after nightfall. By pursuing this course, both the day and night aspects of the terrain may be studied.

Orders.—Orders must be formulated with much care and clearness. Each unit must be given a definite objective and direction and care must be exercised to avoid collision between units. A distinctive badge (white arm band) may be worn. The conduct of each unit on reaching the objective should be prescribed.

Preparations.—With a view to effecting as complete a surprise as possible, preparations for a night attack must be made with great secrecy. Arms and equipment are secured so as to make no noise; silence is strictly enforced; the use of whistles is prohibited; orders are transmitted by agents in a low tone of voice. Bayonets are fixed. Pieces are not loaded.

Formation.—For attack, units are usually formed in small columns (sections or squads). In each platoon, these columns are formed in depth, each being assigned

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the same objective and following the same route. They should follow each other at such distance that no two may be involved in the same ambush.

Advancing the Attack.—The leading unit of each column acts as a covering detachment. It is usually preceded by a pair of scouts. The advance is effected by short bounds, at each halt the scouts reconnoitering for the next advance. Halts are made of the shortest possible duration. Rapidity is an essential element that must not be forgotten for a moment.

Making the Attack.—As soon as a hostile post is discovered, it is rushed with the bayonet. If the advanced element falls into an ambush, the rearward columns move out towards a flank and endeavor to pass it. If this is impracticable, they rush the hostile resistance without hesitation. Any delay after the enemy discovers that the attack is coming is fatal to success. In all cases, the attack is carried home without firing. It is exclusively a bayonet affair. After each attack, the unit is reformed and gotten in hand before another attack is made or the advance continued.

Immediately after the capture of the objective, the position must be rapidly organized with a view to checking counter-attacks.

Training.—All of this indicates the necessity for training and practice in the making of night attacks. Troops must be trained to cover ground in the dark and arrive at a given destination quietly and in good order. Officers must be specially trained and instructed in the preparation for this work and in the methods of reconnaissance.

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Combat in Woods.—Combat in woods partakes in a lesser degree of many of the characteristics of night fighting, such as I have just described. Woods lend themselves to concentrations of gas, especially of persistent gases (mustard).

Woods are especially favorable to the defense in the form of delaying actions conducted by relatively small forces heavily armed with machine guns and supported by snipers.

Phases.—The attack of a wood consists of three general phases:

1. The advance over open ground to the edge of the woods.
2. The advance through the woods.
3. The exist from the woods.

Advancing the Attack.—The defender sees all the movements of the advancing troops, while his own position and strength are concealed. When the wind and atmospheric conditions are favorable, this may be somewhat neutralized by the use of a smoke screen, or the approach to the edge of the woods may be effected by night operations such as I have heretofore explained.

The near edge of the woods is carried like any other position and is used as a line of departure from which the further advance is organized and launched.

If the attacker attempts to advance uninterruptedly through the woods without reorganizing at the edge, great inequality in the advance of different parts of the attacking line will result and the more advanced elements will be exposed to be taken in flank by ambushes prepared by the defense.

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In general, the advance through the woods should be methodically organized, with a view to maintaining cohesion between the attacking units. The movement should be effected in a series of bounds, with halts to restore contact and cohesion either at certain predetermined lines or at prescribed periods. Roads or trails perpendicular to the line of advance are especially useful for this purpose.

Direction must be maintained by means of compass bearings. Special measures for maintaining contact with units advancing on the flank and outside of the woods must be taken (combat communication detachments). Absolute silence must be maintained throughout the advance. Sound signals must be prohibited. The rate of advance depends upon the necessity for reconnaissance and other security measures, and is necessarily slower than on open ground.

Formation.—The formation to be adopted depends upon the density of the woods. In sparse woods, formations resembling those employed on open ground are generally suitable for the leading elements. In dense woods the conditions more closely resemble those of night fighting and similar formations will be most effective (section or squad columns disposed in depth and preceded by scouts.) Supports will follow closely behind the assaulting units. Connecting files maintain communication between the small columns.

Reconnaissance.—Scouts reconnoiter to the front and flanks of the advancing columns, remaining within sight of their units. As soon as the scouts have in-

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dicated "all clear," the platoons and sections advance, and the scouts move forward for the purpose of making further reconnaissance. If the scouts discover a hostile post the leading columns form skirmish line facing it and the position is rushed without hesitation. Rearward columns move to one side of the line of advance with a view to attacking the point of hostile resistance in flank or of checking a counter attack against the flanks of the leading columns.

Protection of the Flanks.—Special provisions for the protection of its flanks must be made by the commander of any unit which has advanced far enough beyond adjacent units to uncover its flanks. Reconnaissance must be pushed out sufficiently to insure that the advancing columns are not taken under a flanking fire.

Debouching from Woods.—Before debouching from the far edge of the woods, the columns should halt far enough within the interior of the woods to be covered from the view of the enemy and there re-form. The position to be occupied after debouching should be reconnoitered in advance. Machine guns and other accompanying weapons should be brought up to cover the exit. If the situation is such that heavy fire from hostile artillery registered on the edge of the wood may be expected as soon as the units commence to debouch, the movement should be carried out in a single rush in the nature of a surprise.

When danger is more to be apprehended from close-combat weapons than from long-range weapons, the exit may be effected by the process of infiltration,

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heretofore explained. Automatic riflemen build up a thin line on the new position and under the cover of their fire the rest of the unit forms.

Training.—Troops must be carefully trained in the maintenance of direction in woods. Exercises in which widely separated units are assigned a common rendezvous at the far edge of a woods are the best for keeping direction by compass bearings. Fortunate is the platoon commander who starts into an operation that may involve woods fighting, who has his noncommissioned officers and men trained so that they know what to do and how to do it.

SYNOPSIS OF TALK

The infantry platoon; Organization; Equipment; Training; Formation; Platoon tactics; Operations of platoon; Capture of a tactical point; Duties of leaders; Platoon leader; Platoon sergeant; Section leader; Section guide; Squad leader; Operations of scouts; Night operations; Night combat; Battle of Meuse-Argonne; Time of night attacks; Night attack; Reconnaissance orders; Formation; Advancing attack; Making attack; Training; Combat in woods; Phases; Advancing attack; Formation; Reconnaissance; Flanks; Debouching from woods; Training.

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APPROACH MARCH AND DEPLOYMENT

Deployment.—In making up the infantry programs of training before the war we generally included the subject "Deployments." This looked good on the program and helped to fill it up. As a matter of fact it was more or less of a joke. We did not take the subject seriously. We did not appreciate the necessity for drill and training in assuming the formation.

Sometimes it was carried out in a perfunctory manner because it was on the program, and the inspector might inquire about it. Most of the time it was overlooked entirely.

Under the conditions of modern warfare the subject of deployment combined with that of approach marches constitutes one of the principal elements of training. Unless a command gets into position and ready to go "over the top" at H hour, the operation is bound to be a failure. The barrage moves out at the appointed time. The leading infantry waves are not ready to follow it up closely. As it rolls past, the enemy comes out of his shelters and gets his machine guns into action. The line is held up. There are hundreds of casualties where there should have been dozens. The units on the flanks fail to get forward because they get a flanking fire from the enemy machine guns in the area that our delinquent troops have failed to take. The whole operation of an army may be a failure.

All of this is the result of lack of training in approach march and deployment, on the part of one or two infantry battalions.

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These things have happened in the past and will happen again in the future unless we all appreciate the necessity for this training and insist on its being carried out over and over again, until every officer and every man knows it as well as he does his close order drill.

Before going into the details of approach marches and deployments it will be well for us to examine into the fighting formation of a division.

Combat Formation.—The division may be formed with the brigades side by side, the leading regiment of each echeloned in a column of battalions. In this case the brigade commander holds out his second regiment, (less one battalion) as the brigade reserve. The remaining battalion of each regiment being designated as the division reserve.

Under exceptional conditions where a wide sector of front is to be covered it may be necessary to employ all four of the regiments side by side, echeloned in a column of battalions.

Again, the brigades may be formed side by side with two battalions of each attacking regiment in the assault and one held as a local reserve. The remaining regiment of the brigade being disposed as brigade and division reserve.

The division may be formed with one brigade attacking and one held in reserve. In this case the regiments are deployed side by side in column of battalions. One battalion of each regiment as the assaulting battallion, one as support and one as reserve. This formation has many advantages. In the first place there is unity of

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command. The brigade commander fights his brigade and coordinates the operations of the artillery with it. There is a division reserve of a fresh brigade that is held wholly out of the fight until the division commander sees fit to relieve the attacking brigade. Communication (liaison) is facilitated for there is only one infantry combat post of command for the division to keep linked up to. Communication (combat liaison) with the units on the flanks is in the hands of one man instead of two as is the case when the brigades fight side by side.

When the attacking brigade has fought its fight and it is time for it to be relieved, we simply put in the reserve brigade by leap-frogging it over. We withdraw the original attacking brigade to the division reserve where it can rest, recuperate and re-equip.

By fighting a battalion each day we get a rattling good six days fight out of a division. At the end of it we have a practically fresh brigade which has not fired a shot for three days.

Formation of Attacking Brigade.—Now let us assume that the infantry of our division is formed up as I have stated, and attacking brigade with regiments side by side and the remaining brigade as division reserve. How is each regiment of the attacking brigade formed?

The assaulting battalion of each regiment will be deployed with two companies as assault companies and the remaining two in support. Each of the assaulting companies will be deployed with two platoons in the first echelon and two in the second. Each platoon will be deployed with one section in the first wave and one in the second.

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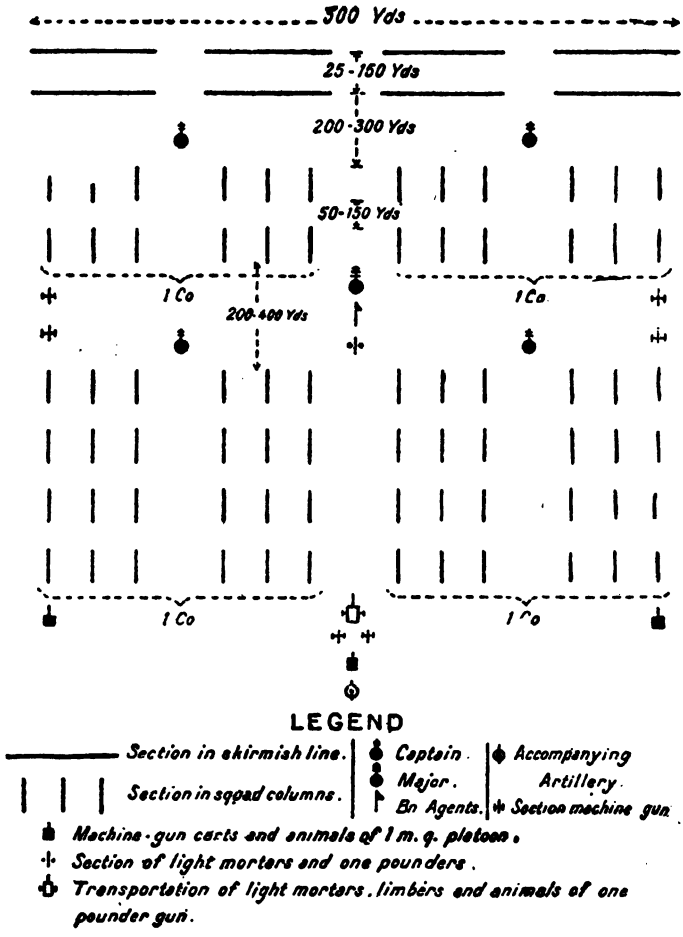

FIG. 1.

(NOTE: The instructor should show the formation by a diagram on the blackboard and explain the elements as he goes along, see Fig. 1.)

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The leading platoons are deployed in line of skirmishers and the remaining platoons are in line of squad columns.

This is the usual formation of the assaulting battalion.

The support battalion follows at a variable distance and in suitable formation, usually in lines of section in squad columns. The reserve battalion follows the support battalion in a suitable formation, depending upon what the enemy is doing to the back areas.

Let us consider a specific instance of the practical employment of the approach march formation and deployment of a command. We will assume a tactical situation, such as may be encountered in actual service, and apply the principles to it.

Situation.—The enemy has been driven from his prepared positions and is retreating. His rear guards are putting up a stubborn resistence at selected points all along the front. Our army is in close contact, push him to the limit and following up every advantage gained. The —— division has been in the fight for a number of days, has fought its fight, and it is now necessary to relieve it with fresh troops. Our division has been designated to relieve the tired division on the lines tonight. Our brigade has been designated as the attacking brigade and our battalion has been designated by the regimental commander as the assaulting battalion and the brigade commander has further designated it as the base battalion.

It is 8 o'clock in the morning when the major gets his

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orders for the relief tonight. In addition to the relief, they direct that preparations be made for continuing the attack again tomorrow morning.

Now let's go into the details of how we arrange for the maneuvering the battalion up to the point where the relief is made.

In the first place the major sizes up the situation and arrives at a decision as to how he is going to carry out his orders. This is his "estimate of the situation." He then assembles his company commanders and issues his orders.

Orders.—These include the information of the enemy and our supporting troops, much the same as given in the statement of the situation a few minutes ago. He then gives his plan and follows it with the disposition of troops and with the administrative arrangements. Lastly, he states the place where he will be found in the initial stages of the operation.

The company commanders return to their organizations and spend the day preparing for the work in hand.

Reconnaissance.—The major assembles his battalion scouts under the battalion scout officer and proceeds to the front. On arriving at the point where he estimates that it will be necessary to abandon the column of route and take up the approach formation, the party will halt. The major explains the formation in which he intends to advance the battalion tonight. Scouts are assigned as guides for the various elements and are ordered to reconnoiter thoroughly the ground over which they are going to pass. The most intelligent and thoroughly

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trained scouts are assigned to the ground over which the base platoon of the battalion is going to advance.

An assembly place is designated to which the scouts will proceed upon the completion of their reconnaissance.

The major, with his battalion scout officer and the remaining scouts, then proceeds to the front, if practicable, along the route over which the base platoon will march. The major reconnoiters the route himself and the scouts make note of the topographical features as they go along.

The party keeps in close touch with the operations of the assault battalions throughout the day and when it halts in the evening, the scouts are assigned to elements of the front line, to whose relief they are to guide corresponding elements of our battalion tonight. These scouts make a thorough reconnaissance. They locate the several elements in the sector to which they are assigned and reconnoiter the routes from the support companies to these elements.

If this last named reconnaissance can be started before dusk in the evening and continued after dusk, the scouts have the advantage of seeing the position both by daylight and at night.

If the night is very dark it will benecessary to take additional precautions to prevent units from getting lost. In this connection it may be stated that more attacks fail on account of troops losing their way than from any other cause. This is the reason why we have to take so many precautions to guide them to their places.

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All of this indicates the absolute necessity for the thorough training of battalion scouts. Show me the battalion commander who has neglected this important phase of training and I will show you one that will be headed for the reclassification depot after his first serious engagement.

The major has made arrangements with his second in command to conduct the battalion up to the point where the approach march is to begin. On the completion of his reconnaissance, he proceeds back to that point, prepared to issue his orders for the approach march and deployment. He has the latest information of the enemy and knows first-hand what the situation is at the front.

If the operations extend into the night, as they frequently do, someone must keep in touch with them. This is the duty that devolves upon the battalion scout officer, who is left at the front for the purpose—this, in addition to directing the further operations of the scouts.

At the proper time the battalion is conducted in column of route by the second in command, up to the point where it has been decided that the approach formation is to be taken up.

Here, the major meets his battalion, assembles his company commanders and issues his orders. The captains return to their companies. They assemble their platoon commanders, the platoon sergeants and section leaders. Based on the orders of the major they issue their orders.

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Orders of the Company Commander.—All of the assembled officers and noncommissioned officers must know the latest information of the enemy and your supporting troops. The major brought all of this back with him and included it in the orders which he has just issued. The information stated in the situation was given in the captain's order when the route march was started, so it is unnecessary to repeat it now. Only additional information will be stated at this time.

The captain follows this with his plan—

"*This company will take up approach march formation.*"

Then follows the distribution of troops and the orders for each element. If practicable, the troops in the approach march formation will be disposed in essentially the same order and general formation as of the troops to be relieved in the line, and the advance is so directed that they will find themselves directly behind the troops they are to relieve.

The relief can then be made with few changes in formation and is thus very much facilitated. In this case, there will be two assaulting platoons followed by the other two platoons as supports.

The major in his order designates our company as the base. The captain's order will take this form:

"*Lieutenant A, with the first platoon, will be the right assaulting platoon and base platoon of the company.*"

"*Lieutenant B, with the second platoon, will be the left assaulting platoon. Communication will be maintained with the right platoon of company—on the left.*"

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"Lieutenant C, with the third platoon, will be the right support platoon and follow the first platoon at a distance of 250 yards."

"Lieutenant D, with the fourth platoon, will be the left support platoon and follow the second platoon at a distance of 250 yards."

"Platoons will be formed initially in column of sections in line of squad columns."

Precautions have to be taken in the march of troops at night to prevent losing the way. This is done by assigning a directing line, a directing point and a compass bearing for the base platoon to march on. The captain provides for all of this in his order.

"The directing line for the base platoon is . . .; the directing point is . . .; the compass bearing is . . ."

The base platoon marches on theseli nes and the other platoons keep in communication with and guide on it. The directing line should be some topographic feature that is easily recognized and followed, such as a road, trail, fence or hedge.

In addition to these arrangements for keeping the base platoon on the right track, the battalion scouts who came out with the major in the morning, and who have been over the ground and made a thorough reconnaissance of it during the day, are assigned to guide the assaulting platoons. As stated earlier in this talk, the most intelligent scouts are assigned as guides for the base platoon.

"Battalion Scouts W and X are assigned to the first platoon, and Y and Z to the second platoon as guides."

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There will probably be no administrative arrangements for the company. The disposition of the rolling kitchen has been previously provided for. Rations have been issued and are carried by the men. They must understand that those they now have on their person will have to last until late tomorrow night, when they will probably be relieved by the support battalion.

The captain now states where he will march and designates a second in command, so that if anything happens to him there will be someone who is entirely familiar with the progress of events to step in and command the company.

"*I will march midway between the assaulting platoons and one hundred yards behind the rear wave. Lieutenant M, second in command.*"

This is the captain's order. This is what he does to get his company into approach march formation. He has told his platoon commanders all they need to know about the situation and the formation. He leaves it to them to get into the proper formation.

Communication.—During the approach march, the captain moves to points from which he can make a reconnaissance of the ground over which the company is to pass. The platoon runners insure communication between the captain and the platoon commanders. As soon as the platoon is deployed, one of the platoon runners joins the captain. Company runners and buglers maintain communication with adjacent companies and with the major during all stages of the advance. Runners or other specially

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detailed men serve as observers and keep the captain informed of events on the flanks. They are trained to assume these duties automatically.

Now, let us follow the operations of one of our assault platoons during the progress of its approach march and deployment. We will consider, for this purpose, our first platoon, which has been designated as the base platoon of the company and battalion.

In order to carry out his part of the work of the team every man in the platoon must know what is being done. This is given to him in the orders which the platoon commander (Lieutenant A) will issue. After receiving the captain's orders he joins the platoon, calls them to "attention," gives the command "at ease" and says, "give me your attention."

Platoon Commander's Orders.—He gives the men the information of the enemy and of our supporting troops, repeating what the captain said on the subject in his order. He follows this with his plan.

"This platoon will take up the approach march formation."

Then comes the distribution of troops. The platoon will deploy in two waves, one section in each wave. The initial formation will be in line of squad columns.

"Sergeant R, with the first section, will be the first wave and base section of the platoon."

"Sergeant S, with the second section, will be the second wave and will follow the first section at a distance of 50 yards."

"The initial formation will be line of squad columns."

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"Battalion scout W is assigned to the first section as guide, Scout X to the second section."

"Approach march formation will be taken up at my command."

"The directing line is .....; the directing point is .....; the compass bearing is ....."

"I will march ahead of the first section. Platoon Sergeant L, second in command."

Lieutenant A then conducts the platoon in column of squads so that the column is parallel to and near the directing line and facing squarely in the compass direction. He then deploys the platoon by the appropriate commands. (1. *Squad Columns, left,* 2. MARCH.) (Par. 211, I. D. R.)

Advancing the Platoon.—The platoon noncommissioned officers and runners assume their normal duties without command and the platoon is ready to proceed. This is the base platoon of the entire battalion—the platoon on which a thousand men guide their march. It will be necessary to wait until all the other units of the battalion are deployed. If our platoon starts off as soon as it is ready the other platoons will never be able to come up with it.

The advance will not be begun until the captain gives the word. He gets his order from the battalion commander, who will not give it until he is sure that every element of the battalion is in position and ready to start.

The progress of the platoon will depend upon many factors. In the first place, if the enemy is up to the

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job—shelling and machine gunning the back areas—the progress will be interfered with to the extent that these activities are being carried out. The enemy cannot however, shell all of the area all of the time. He must confine his shelling to selected areas which he terms "sensitive points." These consist of battery positions, roads, assembly places for troops, etc.

It is the task of our scouts to seek out these places and reconnoiter routes around them.

In the next place, the country may be rough and difficult—hard to get over. This will delay the progress of our advance. It is night. These reliefs are usually made at night in order to take advantage of the cover that darkness affords. If it is very dark, special precautions must be taken to prevent contact being lost and units wandering off in the wrong direction. If there is a moon, the progress of the march will be much facilitated.

Picture to yourselves the confusion which would exist in a command marching up to the relief of another which is worn out and barely holding on until relief can be gotten to them. The night is pitch dark. There is a cold rain falling. The back area is naturally broken and difficult underfoot. These adverse conditions are multiplied by the presence of masses of wire and old shell holes. The enemy is shelling vigorously and machine-gun bullets are falling about promiscuously. Add to all of this the element of only partly trained officers and troops, and you have the situation that confronted our combat divisions who participated in

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the great battle of the Meuse-Argonne, during the late war. How they ever put it over will always remain the marvel of military achievements.

Passing a Shelled Area.—As our platoon progresses it comes to an area that is being shelled by the enemy—say it is one of our battery positions. The platoon must keep pushing to the front. It cannot sit down and wait for the enemy to stop shelling. The situation resolves itself into their avoiding the shelled area—going around it. How are they going to accomplish this?

They have scouts with the platoon who have reconnoitered the route by day. The scouts have noted the battery position and, anticipating the possibility of shelling, have reconnoitered routes around the battery.

The platoon commander gets his section leaders and section guides together and explains the stiuation to them. He then gives them their orders for conducting their sections around the shelled area. He may send both sections around one side that may be favorable for their progress. He may send one section around one side and one around the other. This latter course saves time but has the disadvantage of the possibility of one or the other of the sections getting lost. If time is an element to be considered, he will simply have to take the chance and depend upon the battalion scouts guiding the columns properly.

Our platoon commander must, at this time, take special precautions for the keeping up communication

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with the troops on the flanks in order that they may know what he is doing and govern their actions accordingly. Sight must not for a moment be lost of the fact that ours is the base platoon upon which the march of the entire battalion is being guided.

The platoon commander's orders on this occasion would take the following form:

"The enemy is shelling the battery position in our front. Our battalion continues the approach march.

"This platoon will go around the shelled area, and take up the approach formation again on the otherside.

"The first section will go around to the west (left).

"The second section will go around to the east (right.) Special precautions will be taken no maintain communication with the troops on the right.

"The platoon sergeant is charged with maintaining communication with company . . . on our left.

"Runner A, go to the captain; explain to him the situation and tell him what I am doing. Runner B, go to the battery commander; explain to him the situation and tell him what I am doing. Both of you join me again on the other side of the shelled area.

"I will march ahead of the first section."

This order gives in as few words as possible the decision of the platoon commander and the details for carrying it out.

The section commanders and guides join their sections and proceed to carry out the orders. The platoon commander goes on ahead and selects the ground on which the sections are to again deploy and get into approach march formation.

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How each section commander will carry out his orders will depend upon the circumstances of the case—the ground encountered, the extent of the shelled area, the cover available, etc.

(NOTE: The instructor should draw a diagram of this situation on the blackboard and explain it as he goes along).

When the sections reach points of comparative safety beyond the shelled area they are again gotten under the control of the platoon commander and deployed in approach march formation. Communication with the troops on the flanks is definitely reestablished and the advance resumed.

Thus the platoon proceeds until it reaches the point where it begins to sustain losses from the machine gun and small arms fire of the enemy.

Here deployment is made.

Deployment.--It is quite impossible to lay down hard and fast rules as to just how the deployment will be made and how the advance will be conducted from this point. It all depends upon what the enemy is doing and what cover the country affords. If the enemy is shelling sensitive points heavily, the small groups will have to work their way around the shelled areas. If his machine gun and rifle fire are very heavy extraordinary precautions will have to be taken to avoid it and the advance must be continued under such natural cover as may be available.

It may be that our entire attacking battalion will have to be deployed as skirmishers in order to present a

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less vulnerable target. It may be that only our attacking companies will have to be deployed at this time. It is the job of the company, platoon and section commanders to size up the situation, adopt the proper formation and take the right routes in advancing their commands.

Our assaulting platoon finally arrives at the point where the support companies of the attacking battalion to be relieved are located. It is from this point that the relief of the troops in the front lines is initiated.

The major has gone on ahead. He has met his battalion scout officer and received from him the latest information of the activities of the enemy and our own troops. He has sized up the situation and decided upon plans for the relief of the troops in the front lines. This decision he puts in the for of orders which he ssues to his company commanders and the commanders of the leading platoons.

At this time the battalion scouts who have been up with the battalion scout officer are assigned to the platoons as guides. There should be at least three assigned to each of the leading platoons, one to guide each of the front line squads.

The platoon commander, after receiving his orders, proceeds with his guides to his platoon. He goes to the commander of his leading section, turns over the scouts to him and gives him his orders for the relief. If it has not already been done, the platoon commander would, at this time, give the section commander information as to H hour and any other details that may be necessary.

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What does the section commander do? How does he effect the relief of the first line elements. He takes one of the scouts and proceeds to to the right squad of the section and turns him over to the squad leader. He gives the squad leader the latest information of the enemy and tells him what our own troops are doing. He would say: "Scout A is detailed to guide your squad to the front line where you will relieve the right group in our sector. Establish communication with the troops on our right. I will be with the center squad." The section commander would then proceed to his other two squads and in like manner order the squad leaders to conduct their squads up and relieve the front line elements.

The section commander would then go to the front and make such inspection of the dispositions as is possible under the circumstances. You must remember that it is most difficult to move about up on the front lines, even under the cover of darkness, especially when the enemy is near and active.

In the meantime the platoon commander has gone back and explained the situation to the commander of the second section and given him his orders as to what he is to do. After this he will go out to the leading section and make such inspection and reconnaissance as is possible.

I am sure that you can all picture for yourselves what a delicate operation the relief of the front line units is, even under the most favorable circumstances. It is one of the most difficult operations in the domain

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of Minor Tactics. Add the factors of enemy activity, darkness and the confusion resulting from these, and you have a situation that is well nigh unbelievable.

How are you going to prepare to meet such a situation? By discipline and training—discipline so instilled into the soldier that it insures instant and willing obedience to the orders of the leader; by training of our subordinate leaders from which they instinctively know what to do to meet the situations that confront them on the field of battle.

You have seen what is necessary under the circumstances I have outlined in this talk. These are the things that you as junior officers (or noncommissioned officers) will be called upon to do in time of war. These are the things you have to know to be up to your job. These are the things that you must learn in time of peace when your blunders will not be paid for in the blood of your men. The answer is simple. Study and practice.

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Fire and Movement.—Infantry has two general methods of action, namely, fire and movement. Fire is employed for the purpose of covering and protecting all movement in the presence of the enemy not otherwise masked by the topographical features of the country, by darkness or by fog.

Movement has as its object the gaining of a position relative to that of the enemy, from which a superiority of fire may be developed.

This superiority may consist of a greater volume of fire or it may consist of fire that is better directed and consequently more accurate and effective.

Musketry.—Musketry is teamwork in the conduct of fire. It is the teamwork that we must have in order to obtain the fire superiority that permits the infantry to close with the enemy before sustaining losses that are out of proportion to the results to be attained.

The effective use of the rifle requires, in the first place, that the men be good individual shots. In the next place, the range at which it is desired to fire must be accurately determined. Finally the limits of the target must be so clearly designated that the men will be able to direct and distribute their fire over it in the most effective manner. In other words, to produce effective results in the aggregate, the fire of good shots must be so directed and controlled by their officers, that all will act together as members of a highly trained team in the application of fire against a common enemy.

Range Estimating.—The necessity for correct range

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estimating is at once apparent when you consider that no matter how well rifles may be aimed, the resulting hits are dependent upon the correct sight-setting. It has been shown by experimental firing that if good shots produce 100 hits with a correct sight-setting at, say, 900 yards, under the same conditions of holding, and with an incorrect sight-setting of 800 yards, they will get only 41 hits. This ratio increases very greatly as the error in sight-setting increases.

There are various methods of determining the data on which correct sight-setting may be based. All of these methods depend on what is known as range estimating. This may be accomplished by estimating by eye, by observation of the strike of bullets fired in trial volleys, by getting the range from machine gun troops or the artillery, by measuring on a map, and by sound.

Of all the methods, estimating by eye is the one most most generally employed. In this connection, it may be stated that errors will be very much reduced by taking the average of several estimates made by men who have been trained in the work.

There are two general methods of eye-estimating. The first is based on the appearance of a unit of measure with which we are all familiar, 100 yards. This unit is compared mentally with the entire distance to be estimated.

The next method is by selecting a point considered to be half-way to the point whose range is desired, estimating this distance and then doubling it.

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It takes practice to estimate distances by eye. All of you should take advantage of every opportunity for doing it. In order to facilitate your training in this respect we will have the distance measured from some central point to a number of places and you will be called upon from time to time to estimate these distances. From this individual estimating we will progress to squad, section and platoon estimating.

Training in Range Estimating.—A section is deployed in a line of skirmishers. The line advances upon a designated position from a distance of about 100 yards. During the progress, five or more halts are made. The range, as estimated by the men, is given to the corporal. Each corporal makes an average of the estimates made by his men and gives this as his estimate to the section leader. The section leader averages the the estimates of his three corporals and announces this as the range for the section. The exact range is then announced as determined by accurate measurement and the errors are pointed out. The solution of a few problems like this will increase the accuracy of the section in range estimating very materially.

Target Designation.—No matter how well the men may be capable of firing, no matter how well the range may have been estimated, if the men do not know the location of the target at which they are going to fire, their fire will not be effective.

All of this indicates the necessity for accurated target designation. This may be accomplished by mechanical means, for example, by tracer bullets fired

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into a target to convey an indication of its location to the men in a firing line. The disadvantage of this method is that it discloses the position of the firers to the enemy before the unit is ready to begin firing for effect. The enemy can see the tracers as well as our own men can, and they may take advantage of this opportunity to locate their target.

The next method is by pointing one or more rifles with the sight set accurately on the target. The men look through the sights and in this way locate the target.

When the target is a single point or locality, one rifle will suffice. When it is a line extending across the sector of the front, two or more rifles must be used to designate its limits accurately.

The next method of target designation is by means of a brief description of the target location. This is not so simple as it sounds. To be successful the fire director must have a knowledge of, and be familiar with, military and topographical terms. He must know, for example that the "enemy's right" is his own right, or as we face him, our left. He must know that "our right" means our own right. He must know the names of the various topographical features that may be encountered, such as, crest of hill, military crest, sky line, ridge, peak, valley, spur, saddle, cut, fill, embankment, sunken road, cross road, road fork, right and left bank of stream, etc. He must have a knowledge of military terms designating the formation of troops, such as column of squads, line, line of skirmishers, patrols, machine-gun nests, strong points, etc. He

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must have an appreciation of the influence of background on the visibility of targets at the various ranges.

Where the target is indistinct or difficult to describe, its designation may be facilitated by selecting some prominent point on the landscape and describing the location of the target with reference to the point selected.

This may be accomplished by means of finger or rear-sight widths or by the employment of the horizontal or vertical clock-face systems.

Designation by Finger Widths and Rear-Sight Leaf.—Where we have a prominent feature such as a tower, the chimney of a house, an isolated tree or other prominent and unmistakable landmark, the target may be designated as so many fingers or sight leafs to the right or left of the reference point.

(NOTE: The instructor should here demonstrate the finger and sight-leaf system of target designation. He selects a prominent object as a reference point and designates a target at so many fingers or sight leaves to the right or left of it. In demonstrating, the following sequence will be used: (a) Range—800 yards. (b) Reference point (right edge of that house.) (*c*) Four fingers right, at that tree. (*d*) Machine gun. [See Fig. 1.] The same process, using the sight-leaf measurement will be demonstrated.)

Now, finger widths differ in individuals. To secure uniform results, it is necessary to determine the distance at which the finger must always be held from the eye. By employing the mil system of measurement as a

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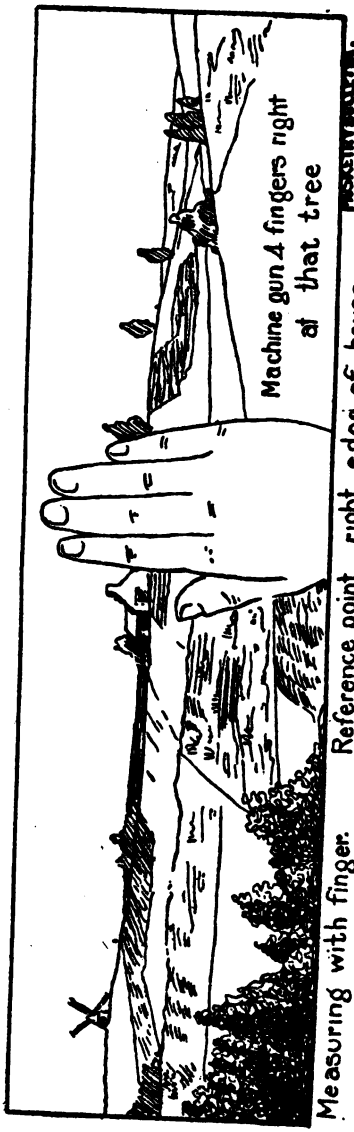

FIG. 1.

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basis, the finger and sight leaf may be very quickly coordinated. We know that 50 mils cover 50 yards at 1,000 yards, or 1-20 of the range. We know then that 50 mils will cover one foot at a distance of 20 feet. Now, if we stand 20 feet from a wall, on which vertical lines one foot apart have been drawn and the finger held at a distance from the eye to cover this measurement, the proper distance from the finger to the eye is determined and may be marked on the rifle—the position of the eye on the stock near its normal sighting position and the hand on the barrel at its proper position. The exact position of the eye for sight-leaf measurement is determined in the same manner.

The Horizontal Clock Face.—The horizontal clock-face system may be used in target designation when the target is visible. The firer is assumed to occupy the center of the clock face. Twelve o'clock is directly to the front, 3 o'clock to the right and 9 o'clock to the left. In designating the target, the fire director first announces the range, then the direction, and finally the target. For example: Range 700 yards; at 1 o'clock; machine gun.

(NOTE: The instructor should draw a clock face on the blackboard to illustrate the horizontal clock-face system. See Fig. 2.)

The Vertical Clock-Face System.—The vertical clock-face system is employed in conjunction with a reference point and the sight or finger measurement which I have already described. It consists in selecting a reference point and imagining it to be located at the center of

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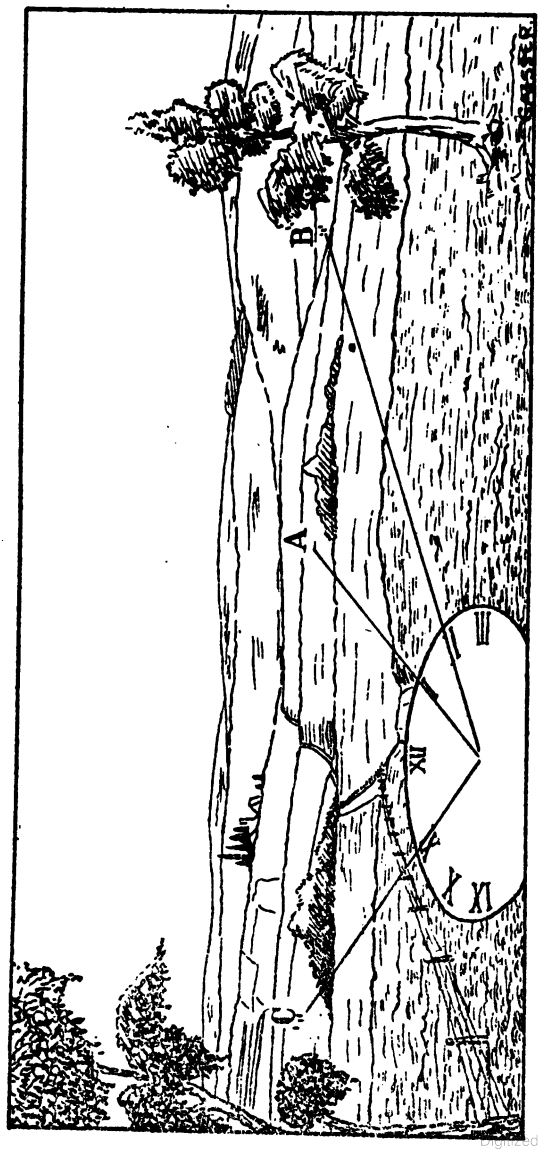

Fig. 2.

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the clock face, with 12 o'clock at the top, 3 o'clock at the right, 6 o'clock at the bottom and 9 o'clock at the left. The target is designated with respect to the reference point. The range is first announced. Next, the reference point is designated. Then the clock direction of the target from the reference point is announced. This is followed by the number of finger-widths or sight leafs. Finally the description and extent of the target is stated. For example: Range 700 yards. Reference point, that church steeple. Eight o'clock. Three sight leafs. Machine gun. Again. Range, 800 yards. Reference point, that church steeple. Five o'clock, two fingers. Skirmish line two fingers.

(NOTE: The Director should draw Fig. 3 on the blackboard to illustrate the use of the vertical clock system. This will facilitate explanation.)

Auxiliary Aiming Target.—Auxiliary aiming targets are used when the enemy's line or machine guns are so placed as to be very indistinct and difficult to indicate to a line of men. This might occur when the enemy is located in cultivated ground, in a wheatfield or in well concealed grass, or when light fails and makes the target difficult to see, but when the location is known to the commander through his scouts or observers, or through personal observation. Under such conditions, some object, such as a road, skyline, hedge or other prominent feature, above or below the target, can be taken as an auxiliary aiming point, by the use of which, with properly adjusted sights, shots may be applied to the desired target.

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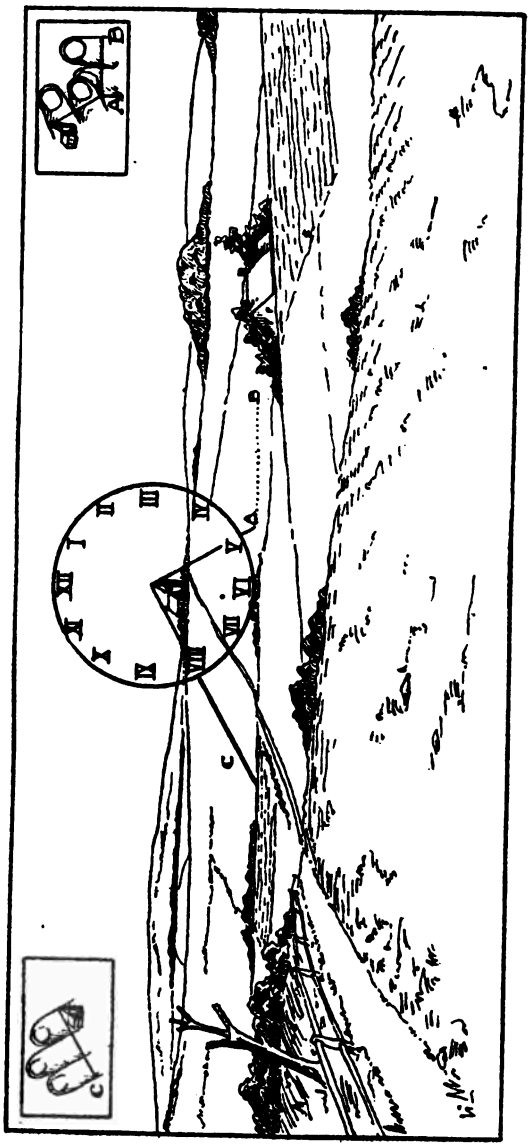

Fig. 3.

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Suppose, for instance, a rifle were placed on a rest and aimed at the target with the correct range. Without changing the position of the rifle, move the rear sight until the aim is directed on the selected auxiliary aiming point. Although aiming at the auxiliary aiming point, with a sight setting different from the actual range, the bullets will still hit the enemy if the rifle has not been moved. Consequently, all rifles fired with that sight-setting and aimed at the auxiliary aiming point, will strike in the target.

Fire Distribution.—In order to gain and hold fire superiority over an enemy it is absolutely necessary that the fire be distributed over the entire target.

Any part of the target not subjected to a continuous fire is left free to pour an effective fire on our attacking troops. For example, we are opposed by a skirmish line extending over a 100 yards of our front. The right 50 yards is subjected to an annihilating fire while the left 50 yards receives little, if any, fire. It is plain to be seen that the enemy rifles in the left fifty yards may fire on our troops without being disturbed. Their fire is accurate and well distributed. They produce a superiority of fire and we are held up. Had the fire been equally distributed over the target this would not have happened.

Fire may be distributed either in width or in depth; in depth, when it is desired to lengthen the beaten zone; in width, for the purpose of keeping all of the enemy's position under such an effective fire that no part of it can fire undisturbedly.

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This distribution of fire is both individual and collective. The individual fires at that part of the target corresponding to his position in the firing line. The combined result of the fire is a line of shot groups so distributed that all parts of the target are kept under fire.

Another element of fire distribution is the manner in which targets are assigned to units. How will a section so distribute its fire as to cause the entire target to suffer therefrom and at the same time permit the employment of one or more of the squads for another threatening target or permit a part of the section to advance under covering fire? Each squad is assigned the entire target and distributes its fire over it so that when the first squad rushes forward or has its fire diverted to another target, the entire original target is still being covered throughout its whole extent by the other squads of the section. (See Fig. 4.)

Communication, Signals and Transmission of Firing Data.—In the din of battle it has been found impossible to make commands heard by the men in the firing line. In order that proper fire control and direction may be assured, a system of signals has been devised. These include simple signals made with the arm and hand to indicate to the men when to commence firing, the rate of fire desired, the range, when to suspend or cease firing, to inquire as to the state of readiness to begin firing and to indicate a change of target.

All men are trained in the nomenclature and use of

(NOTE: The Instructor should illustrate the necessity for fire distribution on the blackboard.)

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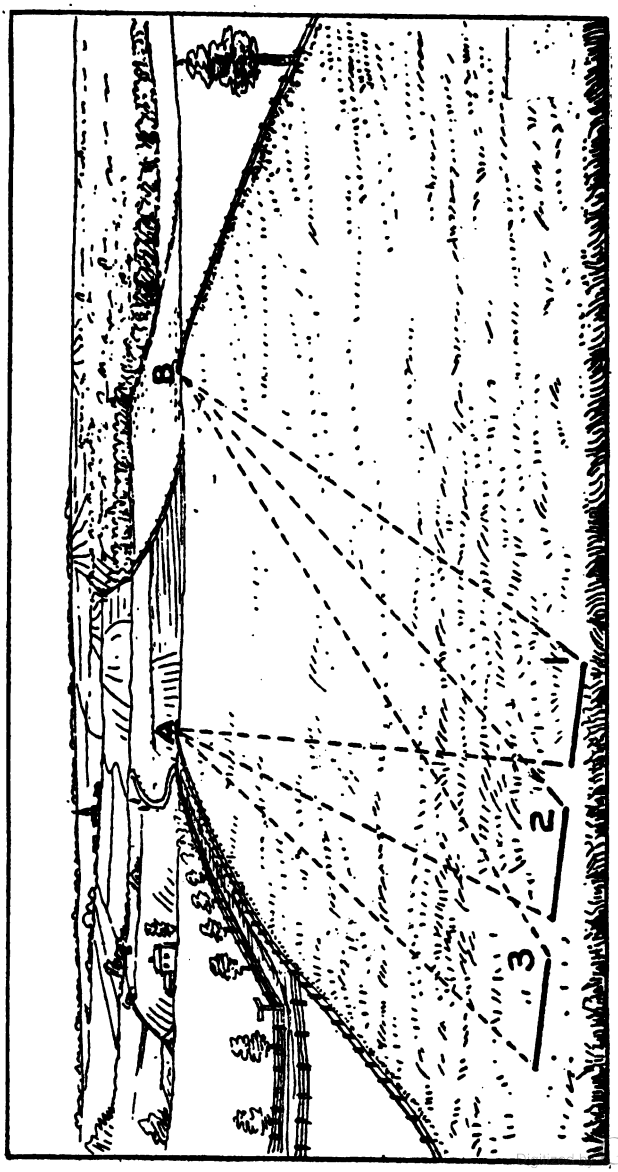

FIG. 4.

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these signals and, in addition, they are trained to translate and transmit them by word of mouth along the firing line.

Use of Cover.—The next subject for consideration is that of the use of cover.

Battles are fought and won by pushing man-power towards the enemy and by finally closing with him. Everything else we do in the progress of a battle has this ultimate object in view. The fire produced from rifles and all other weapons is only a means to the end, that of destroying or capturing the enemy or forcing him to abandon his position and retreat. All of this covering and assisting fire is of no avail if the infantryman fails to take advantage of the cover at hand and allows himself to be put out of action before he reaches the enemy.

This is not to say that he must seek cover to the extent that he will not be able to produce an effective fire on the enemy. The latter is the first consideration and is of far greater importance than cover for individuals.

The training in the use of cover includes not only the mere matter of hiding behind some object but also the methods to be employed for personal protection when under the fire of the enemy. For example, the method of running rapidly from cover to cover, lying perfectly still when little cover is to be had, the method of crawling from place to place, the avoidance of sky lines, the selection of background, the method of firing from doors, windows and from behind trees. It also includes the methods to be used during the process of

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infiltration which was so successfully used by the Germans in their spring offensives in 1918.

Fire Discipline.—Fire discipline is that condition of the personnel of a fire unit, resulting from training and practice, which enables the commander to obtain an orderly and effective delivery of fire.

This involves, on the part of the soldier, constant attention to and the accurate execution of orders and a knowledge of the location and extent of the target. Unless the soldier knows where his target is and the extent of it, there is little likelihood of his being able to produce an effective fire on it. The next thing is a proper sight setting. As has been already explained, the effectiveness of aimed fire depends upon correct sight setting. No matter how well a man may hold, no matter how carefully he may fire, if his sight is set at 900 yards when it should have been set at 750 yards he will get only a relatively small percentage of hits on the target.

The next element in securing fire is a careful delivery of fire. If the soldier is careless, if he does not aim properly and pull his trigger at the right time he cannot hope to make hits on his target, and it takes hits to stop the enemy. You can seldom scare him into stopping.

Following this, is the observation of the enemy. This involves training in the methods of searching of areas. The soldier's gaze must not be allowed to wander aimlessly over the country. It must be directed so that every portion of a given area will be subjected to rigid scrutiny. To facilitate this systematic search,

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the terrain should be subdivided into rectangular areas small enough to confine the eye and facilitate the minute examination of every feature. Two systems are used. Both subdivide the area by imaginary lines, in one case at right angles to the line of sight and in the other parallel to it.

Fire discipline also implies economy of ammunition. The rate of fire must not be so great as to preclude the possibility of accurate aim and proper trigger squeeze. Ammunition is hard to carry and very difficult to convey to the firing line. This supply of small arms ammunition is one of the things that makes staff officers grey-haired. If it is wasted in haphazard firing, the supply will soon run out and you will soon find yourself in a desperate situation. If the soldier once runs out of ammunition, and is in a place where he needs it badly, he will never again commit the same offense.

The soldier must be so trained that he knows what to do and how to do it in all phases of the infantry action. A prominent British officer who was a member of the British Military Mission in the United States during the war, has defined discipline as "The instant and willing obedience to orders and, in the absence of orders, *to do what you believe the order would have been.*" This, applied to fire discipline, implies great initiative on the part of the soldier.

Powers and Limitations of Rifle.—Finally the soldier must know the powers and limitations of his rifle. The following situation may be put up to any soldier. The enemy is over there, opposing you. You have arrived at this point with your squad as a part of the attacking

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line. At this moment the squad leader is badly wounded. No other noncommissioned officer is near. You, Jones, are the oldest soldier in the squad; the men look to you as their leader. What will you do? What range are you going to use? What is your target? You see the enemy working around to the right by infiltration, what would you do? Can you bring an effective fire to bear on the brow of that hill? These and a thousand other questions may be put up to you for solution. You must be able to answer them. You must be able to make good. The lives of your men will depend upon what you do and how you do it.

Application of Fire.—Let us clamp a rifle in a vise, aim it at a target, set and clamp the rear sight. We then fire a number of shots. All of the bullets will not strike in exactly the same spot. They will be scattered over a certain area of the target. The extent of this area depends upon the distance from the muzzle of the rifle to the target. This is what we call the dispersion of shots. The pattern made on the target by the strike of the bullets is called a shot group.

Now, if there is a dispersion of shots under the ideal conditions of firing I have just outlined, there must be a much greater dispersion, a much larger shot group, under the practical conditions of firing than we encounter on the target range and on the field of battle, where no two bullets leave the muzzle of the rifle under exactly the same conditions.

This dispersion increases rapidly with the range and the conditions under which the shots are fired.

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FIG. 5.

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(NOTE: Fig. 5 shows this dispersion at the various ranges. This should be illustrated in the blackboard by the instructor.)

All of this brings up the ever-present practical problem of getting the center of the shot group on the center of the target, thus insuring the greatest number of hits from a given number of shots fired.

The two chief elements which enter this process are the troops and the commander. The troops must be so trained in firing that they will be able to place the center of the shot group on any indicated spot. The commander must have such a knowledge of the application of fire that he will be able to give the proper target designation and estimate and announce the proper range, and thus direct the shot group to the proper target.

Having these two factors present the men will make hits instead of misses.

Conduct of Fire.—The conduct of fire embraces the duties of commanders in maintaining fire control and fire discipline. They comprise not only those duties which may arise in connection with the actual fire fight but many which are necessary prior thereto in order to insure a systematic and orderly entrance into battle with the greatest possible chance of success.

The dividing line between fire tactics and maneuver tactics is often so indistinct that the two subjects appear to merge one into the other. For this reason a knowledge of fire tactics must also include an understanding of its relation to maneuver tactics.

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In this connection the duties of the various subordinate commanders with whom we are particularly interested may be stated as follows:

The Platoon Commander.—He maintains the direction towards the objective, sends out scouts and precedes his platoon in order to make reconnaissance of the objective prior to opening fire. He engages his leading section against his objective. He maneuvers his second section as a second wave or echelon, in support of the leading section so as to envelop or encircle resistance or to reinforce the leading wave.

He selects the target and announces the sight setting. He gives the commands for opening fire as long as this remains possible in combat. He controls the fire and movement of the entire platoon when both sections are in line. He leads a rush when the leading wave comprises more than one section and when the platoon rushes as a unit. He reforms the platoon after it has completed an advance by infiltration. He maintains communication with the captain of the company. He keeps in touch with the platoons on either flank and watches for opportunities to assist them. He prevents exhaustion of ammunition supply and he designates new squad leaders when necessary.

Platoon Sergeant.—What are the duties of the platoon sergeant? Briefly they are these: He replaces the platoon leader when the latter becomes a casualty. He maintains communication between the platoon leader and the second wave. He prevents the second wave from being prematurely merged into the leading

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wave. He directs the engagement of the second wave when so instructed by the platoon leader or when the situation requires it.

Section Leader.—The section leader directs the fire and movement of his section. He observes the target and the effect of fire on it. He regulates the rate of fire and checks every breach of fire discipline. He sets a personal example to his men by his bearing and aggressiveness. When the section rushes as a whole, he leads it. He watches for opportunities to support adjacent sections by flanking fire.

Section Guide.—The section guide assists in the maintenance of fire discipline and keeps on the alert for signals from the platoon commander. He replaces the section leader when the latter becomes a casualty. When the section leader leads a rush, the section guide follows the section, insures that all men join in the rush, and prevents straggling.

Squad Leader.—The squad leader is charged with enforcing the orders of the platoon and section leaders and with maintaining discipline in his squad. When movement by infiltration is ordered, he selects the location of the new position and points it out to the squad. He either leads the squad as a whole to the new position or sends men forward successively by individual rushes, and recovers the control of the squad in the new position. He controls the fire and movement of his squad. He transmits commands and signals. When possible, he participates in the firing, and he leads his squad when it rushes as a whole.

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Scouts.—What are the duties of the section scouts? They move out to the front and cover the advance of the section, when so directed by the platoon leader. They deploy in pairs at wide and irregular intervals so as to present a poor target to snipers and machine guns. They take advantage of cover provided their advance is not unduly delayed thereby. There is no set distance at which they precede the platoon. One moment they may be 500 yards in advance, a short time later they may actually be merged in the platoon. They operate as a combat patrol opening fire at once—with tracer bullets when the situation demands it—on any hostile machine-gun nests or strong points that may be discovered. One scout covers the advance of the other. They constitute the advance elements of an infiltration group, working into a gap discovered in the hostile front. The scout leader watches for signals from the platoon leader.

These are the more important duties that devolve upon the subordinate commanders of a rifle platoon. Each man must be prepared to step into the job above him when the time comes. It is therefore necessary for you to always be looking ahead to the job next above.

Exercises in the conduct of fire will begin with the squad and progress through the section to the platoon. The squad will be trained to work as a team, providing for reconnaissance by its scouts, sustained fire power by its rifles supported by its automatic and its rifle grenadier when the occasion indicates the necessity therefor.

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Composition and Equipment of a Squad.—The 1919 Infantry Drill Regulations prescribe that a rifle squad shall be composed of a corporal, six riflemen and one automatic rifleman. One of the riflemen is equipped with a grenade discharger. One carries extra ammunition for the automatic and serves as a replacement for the automatic rifleman. All riflemen carry a certain amount of extra ammunition for the automatic and, when necessary, rifle and hand grenades. All are trained in the use of the rifle, the automatic, and in the tactical employment of rifle and hand grenades.

Two selected men in each squad are trained as scouts. One or both of them will be used as such as the occasion demands.

In the training of the men it is intended to accustom them to fire on positions under conditions as nearly as possible like those to be encountered in actual service, where they cannot expect to loc a teadistinct and definite target. They must be impressed with the fact that the painstaking use of the prescribed methods of musketry will reduce the enemy's fire and result in a fire superiority that will permit them to advance with comparatively small losses.

It must be remembered that the ability of the platoon leader is displayed by prompt reconnaissance of the ground, by a rapid estimate of what it offers towards facilitating the advance of his men, and by immediate decision on a simple plan for the use of his combined weapons and of ground, to enable him to close with the enemy. His plan should habitually include

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pinning the enemy to the ground by frontal and flanking fire, under cover of which some portion of the platoon, usually those sent against the hostile flanks, can close on the hostile position by means of short rushes.

The training and discipline of the platoon are shown by the skill with which the men carry out the plan of the leader.

Combat Practice.—No system of musketry training is complete without combat practice. In such practice, will be found the ultimate test of fire efficiency of a unit, with only the factor of battle omitted.

Combat practice is the last phase of musketry training. It consists of fire problems for squads and higher units using ball or blank ammunition or, in the preliminary stages, simulated fire. Individuals learn thereby to co-operate, and leaders learn to coordinate the skill and effort of their men so as to obtain a maximum of fire efficiency. Leaders are taught fire direction and control. Fire discipline which cannot otherwise be attained is instilled into the men.

By combat practice, men are trained to adhere to previously mastered principles of conduct of fire under the nearest practicable approach to battle conditions.

Preliminary training for combat practice is quite as essential as preliminary training for individual practice. This consists of map exercises and tactical walks where the leaders are given instruction in solving on the map and on the ground such problems as they will find in actual service. Small problems are prepared and presented for solution. The situations are discussed and

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explained by the Instructor. The members of the class are called upon for their opinion as to what should be done under the circumstances. A solution is finally arrived at and presented for discussion. For this class of training the Tactical Walk is the method *par excellence*.[1]

SYNOPSIS OF TALK

Fire and movement; Objects of; Definition of musketry; Effectiveness of fire; Range estimation; Importance of; Determination of ranges; Estimation by eye; Training in range estimation; Target designation; Tracer bullets; Pointing rifles; Description of targets; Names of topographical features; Background; Finger widths and sight leafs; Determination of location of hand and eye; Horizontal clock face system; Vertical clock face system; Auxiliary aiming points; Fire distribution; Necessity for; Distribution in depth and width; Individual and collective; Communication; signals and transmission of firing data; Use of cover; Fir-discipline; Definition; Orders; Target; Sight setting; Delivery of fire; Observation of enemy; Economy of ammunition; Definition by British officer; Powers and limitations of rifle; Application of fire; Shot group; Dispersion; Troops and commander; Conduct of fire; Platoon commander; Platoon sergeant; Section leader; Section guide; Squad leader; Scouts; Exercises; Composition and equipment of squad; Combat practice; Objects; Preliminary training.

[1] See Advertisement, "Tactical Walks," in back of book.

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ORDERS AND MESSAGES

Before proceeding to a discussion of the subject of orders and messages I want to say a few words about the process through which we have to go before we are ready to start on the composition of a military order. I want to show you how we arrive at a military decision upon which all orders must be based.

Estimate of the Situation.—The essence of everything military is action. Inaction, hesitation, indecision are the cardinal military sins. It is action that wins battles. It is the winning of battles that brings war to a successful conclusion.

To be successful military operations—military action—must be based on correct assumptions and sound, common-sense reasoning. In other words, a military commander, before committing his troops to a line of action, must size up the military situation from every point of view and then arrive at a definite, clear-cut decision as to what he is going to do.

There is nothing distinctly military about all of this. The same process enters into all forms of human activity.

Take, for instance, the successful business man of large affairs. Before investing his money and that of his associates in a project, he examines into it from every point of view. He looks into every phase of the affair, pro and con.

Let us say the proposition involves the manufacture of some article. How does the business man size up the problem before him?

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He must first consider his mission. What is it? Briefly—to manufacture the article and sell it.

He must go further and consider the present and prospective demand for the article. If the market is now limited, what are the prospects of increasing the demand? The initial and ultimate cost of production. The methods and cost of distribution. The sources of supply of labor and raw material. The price at which the article may reasonably be sold to the consumer. The competition that may be normally expected. The margin of profit on the investment involved.

In doing all of this the business man draws upon every source of expert assistance at his command.

Based on these elements, he arrives at a decision as to what he is going to do. If the estimate shows "good prospects" the decision usually is "to manufacture the article and put it on the market." He then gives the necessary orders and instructions to his subordinates for carrying out his decision.

Our business man has sized up the business situation. In other words he has made an "*Estimate of the Situation.*"

Now, that's exactly what a military commander has to do when he is confronted by a military situation demanding action. He has to go through essentially the same process as our business man. He has to make an "Estimate of the Situation." How does he go about it?

Estimate of the Situation.—In the first place he must know his mission—the task that has been set for him.

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This task may have been prescribed by superior authority, as where an organization is designated to furnish the advance guard for a column of troops on the march, or the outpost for a command at a halt.

A mission may have been assigned. In the process of its execution events may happen which may require a change of the mission. The commander of troops must always keep this contingency in mind and take the action that will produce the maximum benefit and best further the interests of the whole operation.

For example: A reconnoitering patrol is sent out. It is charged with making a reconnaissance of the enemy in position. When they get in contact, the patrol leader discovers that the enemy is no longer in position. He is making preparations for an attack against another element of our forces. If the movement is allowed to proceed unmolested, it may most seriously embarrass our operations and possibly result in the defeat of our forces.

The patrol leader sees a favorable opportunity for hampering these activities by abandoning his role as a reconnoitering patrol and assuming that of a combat patrol. His mission has changed. He sends back a message covering the information of the enemy and the action that he is taking, and proceeds upon his new mission.

Having determined upon his mission, the military commander next considers his enemy—where he is, how strong he is, what kind of troops he has. What is the best thing for him to do under the circumstances that

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confront him? How may he go about doing it? What other courses of action are open to him? What is the probable condition of his troops with respect to morale, equipment and supplies.

Our military commander now directs his thought to the consideration of his own troops with respect to those of the enemy. How strong are we compared to the enemy? Is our location, with respect to him, inferior or superior, that is, are we more advantageously located than he is? Have we troops capable of combatting his troops successfully, for example, have we sufficient artillery to oppose his artillery? Have we a preponderance of mounted troops that will give us superior mobility? Assuming that he takes the best course possible, what is our best move to circumvent him? What alternative courses of action are open to us? Have we the "jump" on him with respect to morale, equipment and supplies?

The next thing to be considered is the nature of the country over which we are working. The advantages and disadvantages that it may have for ourselves and for the enemy, with respect to both offensive and defensive operations. How are the routes for communication and supply?

Based on the consideration of all of these factors our military commander, like our business man, arrives at a decision as to what he is going to do.

This he gives out to his subordinate commanders in the form of a tactical order—a field order, we call it technically, in the service.

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The business man sits down at his desk and calmly and methodically figures out his "estimate of the situation." He may take all the time that is necessary. There are no unknown quantities. There is no fog of war to interfere with his calculations. He pays for his incorrect estimate in dollars and cents. If he makes a mistake it costs him money, only.

Now let's see what our military commander has on which to base his estimate. He has a general knowledge of what has gone on before, a shrewd guess as to what the enemy is planning to do and how he will try to do it. A brief glimpse here and there. A fragmentary message from this patrol or that. From all of this material he must piece together a fairly accurate picture of what is about to happen. Add to this the fact that all of this may take place in the heat of battle where opportunities are flying as the moments pass, and you will appreciate the difficulties. He pays for his mistakes and blunders with the lives of his men.

Which is the more important? Money losses we may recoup. The lives of men, once taken, can never be restored.

You may say that this is a lengthy process that is entirely unpractical. The contrary is true. You must not imagine our military commander standing first on one foot and then on the other, lost in brown study, while his men cluster about him in a hail of bullets.

Nothing of the sort. That is not what commanders are paid for.

While his men have been trudging along, wondering

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what, if anything, was going to happen, our leader's mind has been busy every moment.

He has been peering ahead, literally and figuratively, trying to pierce the veil ahead of him with his eyes and field glasses, and piecing out his vision by occasional squints at his map.

He has been anticipating trouble at every turn. He tries to put himself in his opponent's place. At the sight of every hill, wood, or stream in front of him, he asks himself the question: "What would I do at that spot, if I were in the other man's place and he were in mine?"

So, when the first shots crack out from the front our leader has a fairly good picture of the trap that is being laid for him. What is more to the point, he has a plan for meeting what is in store. He has made his "*Estimate of the Situation.*"

A momentary study of the lay of the land, a professional estimate of the scattering shots across his front, a sentence or two from panting messengers, and his "*Decision*" comes like the click of an automatic. His orders come with firmness and calmness.

Facility in doing all of this comes with experience and practice. It cannot be learned in a day. The military commander that neglects it is doomed to failure, if not to disaster.

Orders.—The instructions of a military commander to his subordinates may be transmitted by:

1. Field orders.
2. Letters of instruction.

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3. Messages.

4. Word of mouth, verbal orders.

The object of all of these is to bring about a course of action in accordance with the intention of the leader.

In whichever form they may take they are based on the decision of the commander which in turn is based on his sizing up of the situation.

They should be composed under all circumstances in accordance with the system that is laid down in our Field Service Regulations.

The sequence of the several elements of the order, letter or message is applicable, no matter what the strength of the unit involved. The sequence is the same for a platoon of infantry detailed as the advance party of an advance guard as for a division of many thousand men.

Now, let us take up this composition of the body of an order in detail. Just how do we go about the composition of a field order?

Form for Orders.—For the purpose of securing uniformity in order composition the Field Service Regulations provide us with model forms. The advantages of these are that they all follow a general sequence so that when we once master the basic principles on which they are founded the rest is easy, and in the next place there is little likelihood of our leaving out essential elements of the order.

The Field Order is divided into paragraphs. The first thing we want to know when we get an order is all the information about the enemy that is at hand—

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where he is, and what he is doing. Following this we want to know about the troops of our own forces that are available as support. The first paragraph of the order supplies all of this.

"Information of the enemy and our supporting troops."

Following this, the commander wants all of his subordinates to know what he is going to do—what his plan of action is. Paragraph 2 is set aside for this purpose.

"Plan of the commander, in general terms."

Now, every subordinate commander wants to know what part he and his troops are going to play in the operation. The commander has to divide his command into elements and give them their orders. To paragraph 3 all of this is allotted.

"Disposition of troops and instructions for the several elements of the command."

In composing this paragraph of the order, if you will start with the orders for the element that is nearest the enemy and work back through the other elements you will find it a most convenient and effective method. For example, you are issuing an order for the march of a battalion of infantry from one place to another. The situation requires the employment of covering troops for the march. After giving the information of the enemy and our supporting troops and announcing your plan you are ready for paragraph 3—disposition of troops. It will frame up about like this.

"Captain A, with Company A, will form the ad-

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vance guard. March at 7.30 tomorrow morning, from cross roads 207, via the 207-209-218 road."

"The main body, in order of march, Companies B, C, D, will follow at a distance of 400 yards."

"The outpost troops will be assembled at 207 when the advance guard has taken over the duties of security, and take their proper place in the column."

Paragraph 4 is reserved for administrative arrangements, which in small commands is generally confined to the instructions for transport, messing, etc., and in large commands all the arrangements for the supply of ammunition, food, and forage, the evacuation of the wounded and all duties of an administrative and supply nature.

The final paragraph gives the location of the commander or indicates the point to which messages are to be sent. According to some authorities a second in command is named here.

When the American forces went to France in 1917 they found the system of orders in vogue to be most voluminous, prescribing to the minutest detail everything that was to be done down to the smallest units. This was the outcome of the years of trench warfare. Much time was spent in our schools in an endeavor to master the system.

When the Germans were driven from their trenches and open warfare was imposed on them many of our staff officers tried to carry the cumbersome system along. They soon discovered that it would not do. Things moved so rapidly that commanders of troops

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had no time to read and digest the voluminous orders. In a few days the system was abandoned and our own simple system of field orders put into operation. It stood the test through the great battle of the Meuse-Argonne and it is believed that in the future we will stick to it.

I do not want to burden your minds with a lot of injunctions and don'ts in the composition of field orders, but there are certain precautions that should be taken and it is well that you should know them in order to avoid them.

Great care must be taken to make tactical orders clear and definite. Military history is replete with orders that were misunderstood by commanders because they did not tell them just what was wanted. One of our younger officers who fought through the World War with one of our famous combat divisions aptly said: "My job was half done when I found out just what was wanted." It is the purpose of tactical orders to give subordinates this in no uncertain terms. In this connection it may be said that the commander of troops must accept the entire responsibility for his orders. Such expressions as "attempt to capture," "try to hold," "as far as possible," "if possible," and "as well as you can" are forbidden by the Field Service Regulations to be used under any circumstances. They tend to divide the responsibility between the commander and his subordinates.

You should avoid the use of expressions which depend upon the viewpoint of the observer such as

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right, left, in front of, behind, on this side, on the other side, beyond, etc. The points of the compass should be used instead, such as "to the east of," "south of," "on the west side of," etc. The terms right and left may be applied to bodies of troops because they are fixed designations that we are all familiar with. Again, they may be applied to the banks of a stream, for it is a rule that the observer is always supposed to be facing down stream.

In tactical orders we designate roads and routes of march by naming places through which these routes run. We designate the dividing lines between sectors by the same method. In order to minimize the possibility of errors, we print out all geographical names in Roman letters and where the spelling does not conform to the pronunciation the latter is shown phonetically. Where there are two or more places or features on the map having the same name they are distinguished from each other by reference to other points.

As a rule the affirmative form of expression is employed. Such an order as "The train will *not* accompany the command," is most defective because the whole gist of the order depends upon the single word "not."

Where orders are reduced to writing they should be so legibly written as to be readable even in the poorest light.

Orders must be brief and to the point. Short sentences are easily understood. Conjectures, expectations, reasons for measures adopted and detailed instructions

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for a variety of possible events do not inspire confidence and should be assiduously avoided.

Tactical orders must not trespass upon the province of a subordinate. They should contain everything that is necessary beyond the province of a subordinate and stop there. Detailed instructions as to how a thing is to be done should be avoided. Tell your subordinates what is to be done and leave it to them to do it.

Details of time and place must be carefully calculated and stated.

Now, like most things, there is only one way to learn how to write tactical orders and that is to write them and keep on writing them until you master the technique. After you have done this you will be able to give an intelligent and understandable verbal order without leaving out some of the essential details.

Messages.—Oftentimes on active service tactical orders are given in the form of messages from the superior to the subordinate. The term message is generally applied to a written communication sent by a messenger or by wire or visual signaling methods. They may also take the form of verbal messages.

The same rules of composition as in the case of tactical orders apply also to messages. They must be brief and clear, resembling telegrams.

Messages may also be used for the transmission of information from one person to another. When they are so used the message should convey the information and the following points should be carefully observed:

1. Word the message just as you would a telegram, but don't leave out any essentials.

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2. Write clearly. Your message may have to be read by the flickering light of a match.

3. Write all proper names in capital letters so there can be no mistake.

4. Include only facts that you have been able to verify. If you have to give second hand information or deductions state from where it came or upon what your deductions are based.

5. In reporting on the enemy try to cover the following points; By whom seen? Where? How many? What arms? What doing?

6. Your message should end up with a statement of what you intend to do.

Here, too, there is only one way to become an accomplished military message writer, and that is to write messages and keep on writing them until you master the subject. You would be surprised to see some of the messages turned in during the course of a tactical walk and to see how little real information they contain.

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ORDERS FOR SMALL FORCES[1]

The following are the Tactical Orders that a platoon commander may be called upon to issue:

ADVANCE GUARD

Order for the platoon as the advance party:

"The enemy occupies (a). His patrols are reported in the vicinity of (b). Our detachment marches towards (c). Our company forms the advance guard. The company (less this platoon) the support, which follows at a distance of .... yards.

"This platoon forms the advance party.

"Sergeant A, take the rear rank of the first squad and move out as a point. March by the ...., ..., ... road.

"Privates G and H (Nos. 1 and 2 front rank, first squad) will form the connecting files between the point and advance party.

"Corporal Y (leader first squad) will march at the rear of the platoon and watch out for signals from the rear.

"I will march at the head of the advance party."

Order when the advance guard halts:

"There is no further information of the enemy. The column will halt for one hour. The advance guard forms the march outpost. The support will be located at (a).

[1] For complete solution to small infantry problems involving the issuing of orders by commanders of small forces, see "Tactical Walks."

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"The advance party furnishes the observation groups.

"Corporal Y, take Private K, pick up the connecting files and report to Sergeant A for duty. Inform him of the situation. Tell him to post a march outguard covering the main road on which we are marching about 600 yards from the cross road.

"Corporal Z, take your squad and post a march outguard on the road leading to the (b) (east), about 600 yards from the cross road. Look out for our patrol operating in that direction.

"Corporal X, take your squad and post a march outguard on the road leading to the (c) (west), about 600 yards from the cross road.

"The remainder of the platoon will be posted at (d) as a local support.

"Send messages to me at the local support."

Orders of an advance party commander to a flanking patrol sent out:

"Suspicious movements have been observed in the vicinity of those farm houses (pointing). The column will continue to advance.

"Take your squad as a patrol and investigate.

"Rejoin the column and platoon when practicable.

"Send messages to the detachment commander at the head of the main body."

Orders of a support commander to the commander of a flanking patrol sent out on a cross road to provide for the security of the march of a column by a point:

The support commander calls the patrol commander to him and as they march along gives him the order.

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"There is no further information of the enemy. The column will continue the march.

When we reach the cross roads there (indicating) take your squad out of the column and proceed along the road to the north for a distance of at least 600 yards. Remain there until the column passes.

"Rejoin the platoon when practicable, upon the completion of your mission.

"Send messages to the detachment commander at the head of the main body."

Orders of a Point commander for getting his point in march:

"You have heard the information of the enemy. Our platoon forms the advance party and will follow us at a distance of 150 yards.

"This squad forms the point. (Four men.)

"A, you move out and march on the right-hand side of the road.

"B, you follow at a distance of 25 yards and march on the left-hand side of the road.

"C, you follow me at a distance of 25 yards and march on the left-hind side of the road. Look out for signals from the rear.

"I will follow B."

OUTPOSTS

Order of the platoon commander when the platoon is designated to cover the posting of the outguards:

"The enemy is reported in the vicinity of (a). Contact has not yet been gained. The main body of our command is bivouacked at (b). Our company forms

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the outpost. The first section of the second platoon is posted as a picket at (c) and the second section at (d).

"This platoon will cover the posting of the outguards. All patrols will advance at least 1,200 yards to the front. Remain out until you receive orders to withdraw.

"Corporal D, take your squad and move out to the right oblique in the direction of that (e). There will be no other troops on your right.

"Corporal E, take your squad and move out to the front in the direction of that (f).

"Corporal F, take your squad and move out to the left oblique in the direction of that (g). There will be no other troops on your left.

"Sergeant G, take your section to (h) and remain there as a local support.

"Send messages to the local support."

Orders of a platoon commander when the platoon is designated as the support of an outpost:

"It is reported that there is a force of the enemy in the vicinity of (a). Contact has not been gained. The main body of our command is bivouacked at (b). Our company forms the outpost. The reserve is at (c). The first platoon is out in front to cover the posting of the outguards. The third platoon will be posted at (d) as support No. 2.

"This platoon forms support No. 1, to be posted at (e) and cover the front from (f), inclusive to (g), exclusive.

"Corporal A, with the first squad, will form outguard No. 1, which will be posted at (h) and cover the

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approaches leading from (i). There will be no other troops on your right.

"Corporal B, with the second squad, will form outguard No. 2, which will be posted at (j) and cover the approaches leading from (k).

"Corporal C, with the third squad, will form outguard No. 3, which will be posted at (l) and cover the approaches leading from (m). Maintain liaison with the right of support No. 2 on the left.

"The remainder of the platoon will be posted at (n) as support. Cooking will be done at the reserve and distributed to the support which will in turn distribute the food to the outguards. In case of attack the outguards will be supported.

"Send messages to the support."

Orders for a support commander sending out a patrol:

"There is no further information of the enemy. Our patrols are covering the (explain the field of operations of other patrols that have been sent out).

"You will take these six men. Proceed in the direction of (a) and find out what you can about the enemy. (Or assign a definite mission.)

"Return when darkness prevents further reconnaissance.

"Send reports to me here."

The orders of a patrol commander to the members of his patrol:

"The enemy is reported advancing from the direction of (a) (locations are explained if not generally

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known). Our patrols are covering the (b) and (c). We are going out in the direction of (d) to find out what we can about the enemy. Our special mission is to determine his strength and the way he is advancing.

"I will direct the formation, the route and the assembly points as we go along. Drill regulation signals will be used.

"Messages will be brought here. Jones, you will be second in command.

"Leading the way, the patrol leader commands, 'Follow Me.' "

APPROACH MARCH

Orders of a platoon commander when the platoon is about to break from the route column and take up the approach march formation:

"The enemy is retreating along the entire battle front. Our army has gained a distance of (a) miles in the past (b) days. Our battalion relieves the attacking battalion in the line tonight and continues the advance at H hour tomorrow morning.

"This platoon will take up the approach march formation.

"The formation will be column of sections in lines of squad columns. First squad, first section the base.

"Formation will be taken up at my command.

"The compass bearing is (b).

"The directing point is (c).

"The directing line is (d).

"I will march at the head of the first section."

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FIELD FORTIFICATION

The American soldier is a fighting man. He is aggressive and resourceful. He hates to follow the other fellow's lead. He likes to lead himself.

That's the reason he dislikes the defensive and the reason that he is at his best in offensive operations.

But, however much we may dislike to be on the defensive, the fact remains that in large military operations, we may at times have to asume that role.

The defensive is a form of action to be deliberately chosen only for the purpose of economizing troops on a front where a decision is not sought. This in order that the superior forces may be concentrated at another point where it has been decided to attempt a decisive action.

The defensive may, however, be imposed upon an army by the military situation. This was the case in 1914 when the German hordes swarmed through Belgium into France. The state of preparedness of the British and French was such that there was nothing left for them but to assume the defensive and hold off the enemy until the deficiencies could be supplied.

Whatever may be the character of the defense—whether it be voluntary or imposed—the tactics resolve themselves into the holding of extensive fronts with relatively weak forces.

When a force assumes the defensive it selects the best ground available under the circumstances and prepares it for defense—it intrenches. The extent of the defen-

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sive works depends primarily upon the time available for their construction. In the hasty occupation of a position, it is of first importance to locate the troops with a view to taking advantage of the features of natural strength. Field fortifications are then constructed to increase the strength of these natural features.

The Ground.—The ground selected should be favorable for the development and maintenance of a powerful and destructive fire by all arms of the defense. It should furnish protection against hostile fire, especially for the supports and reserves. It should contain a series of tactical points along well defined lines, which if held, will force the attacking troops into unfavorable positions, where they may be held under a destructive fire and captured, destroyed or expelled by a counter attack. It should favor the movement of the troops of the defense within the position for supporting, reinforcing or for counter attack. It should be suitable to the size of the command. It should favor the protection of the flanks of all elements.

The position selected is the battle ground of the defense. Its proper selection and preparation should offset to a great extent the advantages of the offensive in selecting the point, direction and time of the attack. The practice of holding on to ground that does not give the defense the advantages of the development and maintenance of its fire power and favor counter attack, is particularly condemned.

Organization of the Defense.—The defense is made on a series of supporting points. In the initial stages these

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supporting points are arranged along the front—a linear distribution. In a protracted defense, they will be echeloned in depth also. The organization of the supporting points themselves will also vary widely at different stages of the defense. At first they will consist of simple lengths of trench sited for frontal and flanking fire and paralleled by cover or fire trenches for local supports and reserves. As soon as practicable these are connected with each other by communicating trenches and developed into closed or semi-closed works capable of all-round defense.

In the prolonged occupation of a defensive position, splinter and bomb proof shelters are constructed, and numerous alternative combat emplacements are provided. Dummy trenches and positions are constructed to divert the artillery fire of the enemy.

In order that you may have a better understanding of the practical application of Field Fortifications—what they are for—the purpose they serve, I am going to give you a brief description of a prepared position such as existed on the western front in France during the late war.

It was here that field fortifications were developed to the highest state of perfection in the history of warfare.

Obstacles.—Out in No Man's Land—that section of the enemy's position and ours, obstacles are placed. These serve the purpose of interfering with the progress of the enemy, hold him under our fire and incidently protect our troops in the front-line trenches.

They have no inherent value of their own. They

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serve only as an auxiliary to the fire power of troops. If an attack succeeds in neutralizing the troops that are behind the obstacles, they are valueless.

After trying out all kinds of obstacles on the western front the proposition finally resolved itself into practically the exclusive use of barbed wire entanglements. These met the requirements and served every purpose. They are easily and quickly constructed and readily concealed. They are difficult to destroy and present an obstacle that is most difficult to get through.

Requiremnets of Wire Entanglements.—1. They must be covered at every point by our own rifle fire, either frontal or enfilade. The entanglement and machine-gun positions must be so sited with reference to each other that the front of the entanglement is swept by the fire of machine guns.

2. They must not be so far from the trench that they cannot be kept under observation and control at all times, especially at night.

3. They must not be so close to our trench as to permit the enemy to approach to within bombing range of the position without being discovered. A distance of from 30 to 60 yards will generally be found suitable.

4. They must be concealed as much as possible from the enemy's observation, both from the ground and air. Full advantage must be taken of depressions in the ground, tall grass, woods and reverse slopes.

5. The belt of wire must not parallel the fire trench. It should be irregular in width and height. This first

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consideration will prevent the enemy artillery from ranging on the trenches to destroy the entanglement, the second will prevent his knowing definitely when the wire is destroyed. Especial precautions must be taken in siting the entanglement so as to prevent giving away how the position is occupied.

Design.—1. Within limits, a broad, thin entanglement is better than a narrow, thick one. The former is less visible and cannot be so easily destroyed and breached by the enemy's artillery and trench mortars.

2. Two belts of entanglements, separated by a space of from 10 to 50 yards, are better than the same amount of entanglement in one belt.

3. The entanglement must be well supported and anchored to the ground by means of pickets and posts, so as to be difficult to flatten out or drag aside.

4. Sufficient barbed wire must be used to prevent easy penetration. Loose tangled wire should be thrown in promiscuously after the entanglement is completed. This is difficult to clear aside even after the wire has been cut.

5. Blinded gaps must be left to facilitate the passage of members of the defending troops. These gaps are left about every fifty yards. Means for blocking them when necessary must be close at hand.

6. In its first stages the entanglement should present an obstacle behind which the wiring party may work under protection and which can be subsequently added to and improved.

The wire entanglements in use at the time of the

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signing of the armistice had narrowed down to two types—the low or knee high entanglement and the double apron fence entanglement.

The Low Entanglement.—This consists of three rows of medium height pickets with a horizontal wire along the top of each one and one diagonal wire in each of the two bays formed by the three rows, and finally loose wire thrown into the bays. This is not a very effective entanglement. Its chief value is the ease with which it can be concealed.

The Double Apron Fence.—The double apron fence entanglement consists of a simple four-strand, barbed-wire fence. From this initial construction, an apron is extended to each side on which three wires are fastened. Belts of this entanglement form an excellent framework for a real wire entanglement. It is completed by throwing loose and tangled wire into the bays for thickening purposes.

The construction of these entanglements has been reduced to a science. A drill has been provided and the motions of the construction are practically carried out "by the numbers." This was necessary on account of having to construct the entanglement at night, and unless the working party is highly organized and the work thoroughly systematized, so that every man knows just what to do, little headway will be made.

Portable Wire Obstacles.—In addition to the permanent obstacles it is necessary, at times, to have the means at hand for quickly blocking a trench or the gaps in the wire entanglement, This requirement is met by provid-

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ing portable wire obstacles. These take the form of "knife rests," "wire gooseberries" and "hedgehogs." (See Fig. 1.)

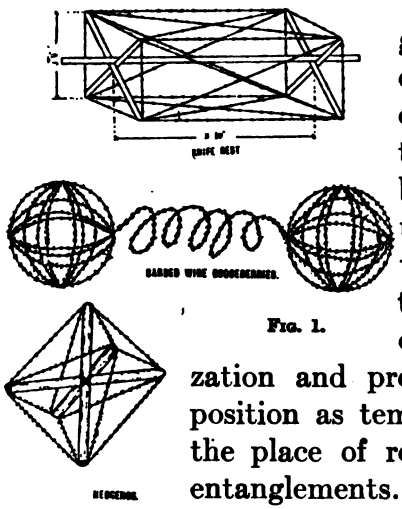

Fig. 1.

They are used to fill gaps in wire entanglements or make repairs in destroyed sections. They may be thrown into trenches to block them, and they are useful as barricades in village streets. Again, they may be used in the early stages of the organization and preparation of a defensive position as temporary obstacles to take the place of regularly constructed wire entanglements.

Listening Posts.—To assist in the control of No Man's Land and to get early information of what the enemy is doing, we establish a series of stations at intervals along the front. These are termed "listening posts." They are usually located at the far edge of the first belt of wire and protected by an auxiliary belt extending around their front and flanks. They are connected with the fire trench by a narrow, zigzag trench which may be open or take the form of a covered approach.

The careless use of these listening posts is particularly condemned. They are easy marks for hostile raids and must not be so located that they interfere with the flank protection of the main trench.

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In case of alarm and it becomes necessary for the men on listening duty to retire to the main trench, the communicating trench must be blocked with portable obstacles.

The Fire Trench.—The next element in our defensive line is a fire trench, generally a traversed type. This means that the trench is divided up into short lengths which are called firing bays. These are separated from each other by sections of the ground where the earth is left undisturbed for a space of several yards and the trench run around this space. These are called traverses. They are left for the purpose of giving protection from enfilade fire—that is, fire delivered down the trench—and to localize the effect of shell fire—that is, when a shell bursts in a particular bay of the trench its effect will be confined exclusively to that bay.

NOTE.—The instructor should have a drawing of the standard trace and profile of traversed fire trench drawn on the blackboard and point out to the class the following with respect to them:

Trace.—Location of firing bay, location of traverse; length of firing bay, 28 feet, provides firing front for one infantry squad; width of traverse 12 feet.

Profile.—Depth of trench below ground 5 feet, height of parapet 1 foot 6 inches, making a total of 6 feet 6 inches cover, which permits natural walking along the trench without being seen; location of firing step (banquette), being 4 feet 6 inches below the top of the parapet, which affords good standing firing position for a man of average height; width of trench at the sur-

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face of the ground 6 feet 6 inches; width of fire step 1 foot 6 inches, and width of trench at bottom 2 feet, all of which provides good natural slope to sides of trench, suitable width of fire step and allows space at bottom for normal circulation in the trench; location of the parapet and parados and the necessity for same, the former to protect men from the fire of the enemy in front and the

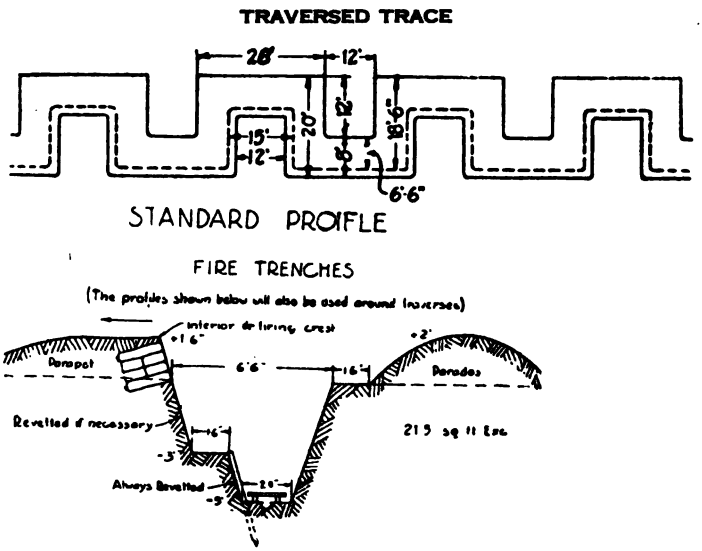

Fig. 2

latter to protect them from the back splash of high explosive shells; location of berm, just to the left of the parados, necessary to keep the back wall of the trench from caving in due to the weight of the dirt on the top if it is allowed to come clear up to the edge of the trench; the sandbag revetment in the parapet. If this profile is

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drawn on the blackboard and the above features pointed out, the student should have a very good idea of the normal profile for a fire trench (Fig. 2.)

Communicating Trench.—You can picture for yourself the difficulties that you would encounter in moving along a considerable front of fire trench, winding in and out, around the traverses and firing bays. Add to

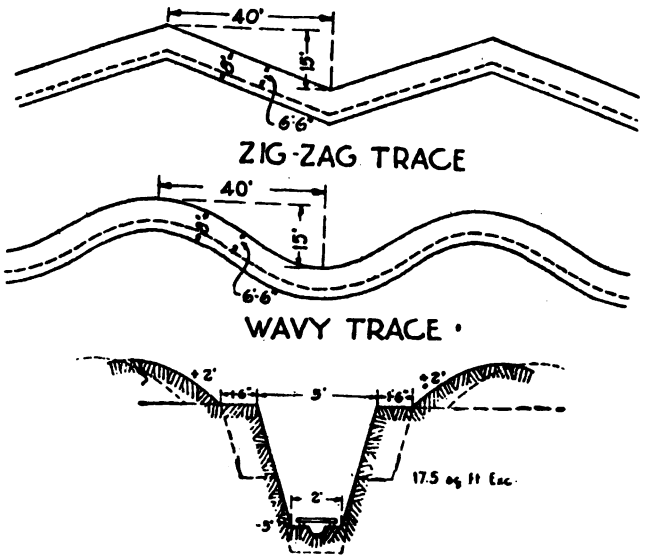

FIG. 3
Communicating trenches (trace and profile)

this the factor of carrying a heavy load or a stretcher with a wounded man on it, and you can see how your difficulties would multiply.

To facilitate circulation and provide easy lateral communication along the front lines, we dig what we call a communicating trench.

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This trench parallels the fire trench at a distance of from 25 to 50 yards in rear of it. It is a continuous trench of a wavy or zigzag trace and has offsets that connect it with the fire trench at each alternate traverse (Fig. 3.)

In the profile of this communicating trench we omit the fire step and have the sides run down from the surface of the ground to the bottom on as steep a slope as will stand without excessive revetting. We put in a 1 foot 6 inch berm and a parados on each side of the trench. (Fig. 3.)

NOTE.—The instructor should draw a profile of a communicating trench on the blackboard and explain the features and dimensions as heretofore indicated in the case of the fire trench. (Fig. 3.)

The next element in our system is a support trench which runs generally parallel to and at a variable distance from the front-line fire trench. The support trench is usually of the traversed type of fire trench, such as I have heretofore described, and is paralleled by a communicating trench. There are usually several lines of wire in front of the support trench to hold up the enemy's attack.

The next element is another line of trenches constructed the same as the support trench system. These are for the reserves.

All three of these lines constitute what is known as the forward or first line of defense, that is, it is the first position that the enemy comes against in his attack.

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These three lines are connected from front to rear by wide communicating trenches—boyoux as the French call them—of the zigzag or wavy type, that run generally at right angles to the trenches.

Here and there throughout the system are machine-gun and light mortar emplacements, and in the support and reserve lines there are deep dugouts to protect the garrison from the artillery fire of the enemy.

In rear of this first position there may be as many more as the necessities of the situation may require. On the British front in Flanders there were five complete lines fully organized and prepared for defense. This was after the German offensives of the spring of 1918.

Strong Points and Supporting Points.—In every intrenched zone there are a certain number of points whose loss or occupation by the enemy will endanger seriously the rest of the line or weaken the defender's hold upon it. Other points particularly favorable for defense will also occur. Such points receive special treatment so as to develop to the utmost their capabilities for defense and to enable the troops to hold them even after the neighboring portions of the line have been lost. If the intervals between these points are great, there will be small intermediate works. These are designed to offer a protracted resistance, unsupported if necessary, to hostile attack from any direction, flank and rear as well as from the front.

The importance of the point to be strengthened, its position and its nature generally determine the area to

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be inclosed. A large defensive work offers a less concentrated target to hostile guns and is less vulnerable, but requires a large garrison to occupy it. These points are usually occupied by a battalion, and when such is the case it is called a supporting point.

The small intermediate works are also arranged for all-round defense. Such a work is designed to be occupied by a company and is called a strong point. This type of work is carefully concealed and camouflaged. It must be strongly constructed, else it will become a veritable shell trap. Good bomb-proof cover is provided for the garrison in the work itself. Machine guns are employed wherever possible.

The larger supporting points are better defended by a system of trenches covering a more extended area. The edges are provided for defense from all directions, consisting of either a continuous firing line or short lengths of trench covering every possible line of approach and connected with each other and the remaining elements by communicating and approach trenches.

Small strong points such as I have described might well form one of the elements of a larger and more extensive supporting point.

The interior of these supporting and strong points is cut up with compartments, and the scheme of defense is so organized that even should the enemy succeed in establishing himself at some point in the perimeter, an unbroken front can still be presented to him and the defender's hold on the locality practically undisturbed.

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Machine guns play an important part in these defenses, and alternative emplacements must be numerous. The sitting of the machine-gun emplacements must be carefully considered, so as to disperse the guns laterally and in depth. Their location will largely govern the design of the work.

A supporting point should not afford a concentrated artillery target. Its reduction by bombardment should constitute a difficult and lengthy operation entailing a vast expenditure of ammunition.

Villages and Farms.—Villages and farms have always had a great influence on military operations. They are natural strong points that may be readily strengthened artifically. If the defense is properly organized, their capture has usually proved a long and costly operation. Cellars with their roofs shored up and reinforced form excellent shelters, and good communications entirely underground may be made by breaking through from cellar to cellar. The organization for defense is made along the same lines as the ordinary strong point. The field of fire for interior lines of resistance must be prepared by complete demolition and the clearing away of the resulting debris.

Location of Supporting Points.—The supporting points must be within supporting distance of each other; that is, effective infantry fire must be able to reach the middle of the interval between adjacent centers of resistance.

In the attack the enemy may push into the intervals and may even completely surround a supporting point,

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But it is necessary for him to effect the complete reduction and capture of the point before the attack can pass on. The British lost thousands of men before they fully realized this. The attacking line would pass on through the forward position and not provide sufficient strength in their cleaning-up parties. After the line passed the Germans would get their machine guns out and into position. When this happened the execution that they could effect in a very few minutes was enormous.

The power of the defense does not consist in simply holding the firing trenches or even the support trenches, but lies in the ability to organize and launch a relatively strong counter-attack. With artillery preparation the fire trenches can be overrun, but the holding of the trenches thus captured against a powerful counter-attack from the line of trenches next further back is the difficult part of the operation.

The commanders of sectors along the front do not count on holding their front lines against a determined attack. They have detailed arrangements for the launching of a counter-attack when the enemy barrage has petered out and his troops are disorganized and unable to effectively defend themselves. If the counter-attack fails, the final defense is made on the strong points that form the reserve trenches of the supporting points. These have caused more failures of offensive operations than any one factor in the entire war.

Revetment.—In the construction of field works we

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must have artificial means for holding the earth along the sides of trenches at a steeper slope than it would naturally assume. This is provided for by the construction of revetments.

The revetting material usually found in the field is limited to brushwood from which we may construct hurdles, facines and gabions.

Hurdles.—A hurdle revetment is made by driving heavy stakes along the section of the trench that it is desired to revet and weaving brushwood in and out between them. Another method is to drive the stakes and anchor the tops with wire into the parapet and place brushwood between the stakes and the side of the trench.

Facines.—A facine is simply a bundle of brushwood about 18 feet long tightly bound together with wire or withes. These bundles are used for revetting purposes by piling them, one on top of the other, along the sides of the trench and anchoring them into the parapet.

Gabions.—Gabions are large barrel-shaped receptacles constructed of brushwood which may be filled with earth and form a revetment by standing them along the section of the trench to be revetted.

Other revetting materials that are usually not at hand and have to be supplied from the engineer dumps are planks, woven-wire netting and sandbags. All of these may be used to the extent that they can be supplied, and all form excellent revetting material.

Where time and material are available and the defensive line is to be more or less permanent, the best

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revetting material is poured concrete, constructed the same as we construct a concrete retaining wall.

Bombproof Shelters.—Back in the support and reserve lines we must provide shelter from the enemy's artillery fire for the men that are to be held there for counter-attack duty. This shelter is provided for by the construction of deep dugouts to which the men can go in case of bombardment. This dugout construction was developed to a high degree of perfection during the period of trench warfare on the western front by all of the belligerents. The whole country behind the lines was honeycombed with them. In many instances they were made of reinforced concrete, and many of them has as much as 40 feet of overhead cover.

Camouflage.—During the late war the art of camouflage was developed to a degree hitherto undreamed of. Both the Allies and the Germans maintained enormous establishments for the manufacture of camouflage material where thousands of men and women were employed.

The idea in camouflaging an object or locality is to make it look like something else or making it indistinguishable from its surroundings. Again we may employ camouflage for the purpose of suppressing all signs of human activity at a certain place or with a view to deceiving the enemy as to the real purpose of the activity. The necessity for such great care in camouflaging field works is due to the development in aerial observation, and especially in aerial photography. Photographs taken from above disclose every feature of the country and spread them out plainly before the eye of the trained interpreter of aerial photographs.

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Camouflage Discipline.—Great precautions have to be exercised to enforce camouflage discipline, for if this is not done many of the benefits derived from it are negatived by careless soldiers violating the rules and regulations respecting it. For example, a considerable amount of work may have been done on a project before the camouflage material is put in place, or a well-defined trail that will show up plainly in a photograph may be made by careless persons right up to the object it is desired to camouflage.

No matter what regulations may be promulgated with regard as to who is going to construct the field fortifications in a sector, the matter finally resolves itself into the infantry constructing them. Engineers will never be available when you really need them to lay out the works, so that infantry officers and noncommissioned officers will have to attend to these details as well as to those of superintending the actual work of construction.

Officers and men must be well trained in the method of marking out works to be dug at night and extending a working party on its task in darkness. Troops must be trained to dig when fully equipped except their packs.

The output of the work is much greater when the men have been systematically trained and when they are correctly distributed to their respective tasks and directed by competent noncommissioned officers.

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MAP READING

GETTYSBURG WAR GAME MAP

Sheet P–11

Q. What is a military map?

A. A military map is one which shows the relative distance, direction and elevation of all objects of military importance in the area represented.

Q. What is map reading?

A. The ability to grasp the general features of the map and to form a clear mental picture of the ground represented by it.

Q. What are the essential elements of map reading?

A. 1. The conversion of map distances into corresponding ground distances; that is an appreciation of the scale of a map.

2. An appreciation of compass direction.

3. A knowledge of the conventional signs and symbols employed by map makers to represent the various topographical features of the country included in the map.

4. A knowledge of contours and what they are intended to represent.

(NOTE: The map used in this conference on map reading is Sheet (P-11) of the Emmitsburg quadrangle of the Gettysburg War Game map prepared at the Army Service Schools, Fort Leavenworth, Kansas.)

SCALES

Q. What is the scale of the map?

A. Twelve inches equal one mile.

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Q. What do you understand by the statement "12 inches equal one mile?"

A. That 12 inches measured in any direction on the map represents one corresponding mile on the ground; that any 6 inches measured on the map represents ½-mile on the ground. In other words, the scale of a map is the ratio between two points on the map and the corresponding points on the ground.

Q. In what ways may the scale of a map be expressed?

A. 1. By a plain statement in words and figures as given in the previous answer; "12 inches equal 1 mile."

2. Graphically, that is, by drawing a line on the map, dividing it into equal parts and marking them, not with their actual lengths, but with the map distance that they represent.

3. By a representative fraction, contracted in practice to R. F.

Q. You note that the R. F. for our map is not stated. What is it?

A. The R. F. of our map is 1/5280. For convenience expressed R. F. 1:5280.

Q. How do you arrive at the conclusion?

A. A R. F. is a fraction reduced to unity in which the numerator represents the map distance and the denominator represents the ground distance both in the same unit of measure. We know that our map is 12 inches to 1 mile. We make a fraction thus:

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$$\frac{\text{Map distance}}{\text{Ground distance}} = \frac{12 \text{ inches}}{1 \text{ mile}} = \frac{12 \text{ inches}}{63360 \text{ inches}} = \frac{1}{5280}$$

This means that any one unit of measure on the map will represent 5,280 of like units on the ground. To prove this we have 12 inches or one foot on the map representing one mile or 5,280 feet on the ground.

Q. What scales are prescribed by the War Department in making military maps and sketches?

A. 1. For maps on which the organization of defensive positions are indicated? 12 inches to 1 mile. Our war game maps are made on this scale.

2. For position maps, place and outpost sketches 6 inches to 1 mile.

3. For road maps and sketches, 3 inches to 1 mile.

4. For strategic maps, 1 inch to 1 mile.

(NOTE: Our Geological Survey maps are drawn on R. F. 1: 62500, which is nearly 1 inch to 1 mile. To be exact they would have an R. F. of 1:63360.)

Q. What are the two classes of map scales?

A. 1. Working scales.

2. Reading scales.

Q. What is a working scale?

A. The scale used by the topographer in making the map, as paces, strides, feet, lengths of a chain or rope, revolutions of a wheel, etc.

Q. What is a reading scale?

A. A reading scale is one used in laying off distances on the map. It is in a standard unit of measure with which we are familiar, such as miles, yards, feet, etc.

(NOTE: In some cases the working and reading scales may be identical as when the topographer

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measures his distances on the ground in yards and our reading scale is also in yards.)

Q. Suppose you have a map that has no graphical scale line on it but has an R. F. or a statement that so many inches equal one mile. How would you go about measuring distances between points on the map?

A. It would be necessary to construct a graphical scale.

(NOTE: Modern maps usually have a graphical scale on them. Should they not, it is a very simple matter to solve a scale problem and construct a scale provided you have the R. F. or data from which you can deduce it.)

With the following simple formula any scale problem may be solved:

Let m = the number of units of measure to be represented by the scale line. In linear scales make this always 1,000, so there is nothing further to remember.

Let p = the number of inches in the unit of measure. For a scale of yards p would be 36, for a scale of 30-inch paces p would be 30, for a scale of meters p would be 39.37.

Let n = the denominator of the representative fraction. For 12 inches to the mile n would be 5,280.

Let x = the number of inches in the scale line to represent m units of measure.

then:
$$\frac{m \text{ times } p}{n} = x.$$

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Or if you prefer a rule the following is applicable: Multiply the number of units of measure in the scale line by the number of inches in the unit of measure and divide by the denominator of the R. F. The quotient will be the number of inches in the scale line. Applying the formula let us work out the scale of yards for our map.

m = 1,000 yards. The number of units of measure to be represented by the scale line.

p = 36 inches. The number of inches in the unit of measure.

n = 5,280. The denominator of the R. F.

x = 6.81. The number of inches in the scale line to represent 1,000 yards.

Draw a line 6.81 inches long. Divide it into five equal parts each representing 200 yards. Divide the left division into two equal parts each representing 100 yards. You have your scale ready for use.

Q. How do you determine the distance between two points on the map?

A. 1. By measuring along the edge of a piece of paper the distance between the two points and applying that distance to the graphic scale on the map, and reading directly from it.

2. To measure the distance from one point to another along a winding road or course, place the edge of the paper along each straight stretch, placing the point of a pencil or pin at the edge of the paper at each successive point where the direction changes and shift the edge of the paper

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around to follow the courses until the total distance has been covered. Apply this total distance to the scale of the map and read direct.

3. The distance may be measured by a pair of dividers as follows: Place leg No. 1 of the dividers at the initial point; spread leg 2 out to the first change of direction; holding leg 2 in place, swing leg one around until a line between the points of the two legs is in prolongation of the next course, then holding leg 1 in place spread leg 2 out to cover the course. You thus have your first and second stretches of the distance accurately laid off between the points of your dividers. Continue this process until the entire course is covered; apply the distance to the graphic scale on your map and read direct.

Q. What is the distance from road fork 443 to road fork 395, via 428?

A. 2,775 yards.

Q. You have two machine guns on top of hill 462. You observe a mounted patrol on the unimproved road at the farm-houses at A. You decide to open fire. What range would you give your gunners?

A. Range 960 yards.

Q. You are in command of a combat patrol of one squad. You have arrived on the hill at B southeast of the Clagett farmhouses. You observe a small body of the enemy engaged in the destruction of the railroad bridge at C. You decide to open fire. What range would you give?

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A. Range 600 yards.

Q. Your platoon is marching via the 443-415-428-395-383 road. It has halted for the regular hourly rest at the road fork 443. It is now 9 a. m. You continue the march. At what time will you reach road fork 383?

A. The distance is 3580 yards. Marching at the rate of 88 yards per minute the platoon will march 40 minutes, and will reach road fork 383 at 9.40 a. m.

DIRECTION

Q. How is the north point of a map indicated?

A. By a line placed on the map at a convenient place with an arrow pointing to the north.

Q. On our map there is no line showing the north. How would you determine which is north?

A. When we get a map with no north line on it we can usually safely assume that the reading on the map runs east and west. This makes the sides of the map as we look at it run north and south. The top is north, the right-hand side east, the left-hand side west and the bottom south. This is exactly the case with the map on which this conference is based.

Q. How is the direction of one point from another stated in military map reading?

A. By the points of the compass. One point is said to be north, east, south or west from another point. When it lies between the north and east points it is said to be north (so many de-

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grees) east; when between the east and south it is said to be south (so many degrees) east; when between the south and west it is said to be south (so many degrees) west, and when it is between the west and north it is said to be north (so many degrees) west.

Q. What is the direction of 395 from 428?

A. It is east.

Q. What is the direction of 383 from 443?

A. It is north 45 degrees east.

Q. What is the direction of road fork 443 from 415?

A. It is south 20 degrees east.

Q. What is the direction of 427 from road fork 443?

A. It is west.

Q. What do you understand by orienting a map?

A. Placing the map in such position that every road, stream, or other feature on the map will be parallel to its actual position on the ground; in other words, to make the map and the ground it represents coincide.

Q. What are the objects of orienting the map?

A. To enable you to pick out and identify on the ground all the features shown on the map.

Q. By what methods may a map be oriented?

A. 1. When the map has a magnetic meridian on it: Place the north and south line of the compass parallel to the magnetic meridian and turn the map until the north end of the needle points to the north of the circle. If the true meridian only is shown on the map you must know the

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declination and make allowance for it. If the declination is not more than 4 or 5 degrees the orientation on the true meridian or along the up and down borders of the map will be sufficiently accurate for all practical purposes.

2. When you have no compass or the meridian is not shown on the map: (*a*) If you can locate on the map your position on the ground and can identify another place on the map which you can see on the ground, shift the map around until the two points on the map are aligned on the distant point on the ground and you have the map oriented. (*b*) By reference to a straight road or line of railway on which you may be standing turn the map until the conventional symbol points in the same direction as the feature that it represents. In both of these methods the points used for orientation should be as far apart as possible and in any case they should be more than an inch apart on the map.

Q. How would you locate your position on the map?

A. 1. When the map has been oriented by compass. Sight along the ruler at an object on the ground at the same time keeping the ruler on the plotted position of this same object on the map. Draw a line towards yourself. Locate another point on the ground that is plotted on the map and repeat the process. The intersection of these two lines is your map position. These lines should form an angle of not less than 30 degrees

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and not more than 150 degrees. Get the angle as nearly 90 degrees as practicable.

2. If the map has been oriented by means of a straight line drawn between two map points, it will be necessary to draw but one line from an object on the ground, and the intersection of this line with the line already on the map will be your location on the map.

Q. Suppose you are at the railroad bridge at C. How would you orient your map?

A. Turn the map so that the railroad runs in prolongation of the line on the map that represents it, and your map is oriented.

Q. You are standing on hill 462 where there is no well-defined feature on which to orient your map. You have a box compass. How would you orient?

A. Lay the compass on the map with its box edge parallel to the sides of the map—the 0-360 point towards the top of the map. Now, turn the map until the compass needle reads zero and your map is oriented.

Q. You are out in the open fields on the high ground about 900 yards east of the Clagett farm. You have a compass. You want to get your location on the map approximately accurate. How would you go about it?

A. First orient your map with the compass as explained above. Now lay a ruler on the map, pivot it on the Clagett house on the map and sight it

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at the Clagett house on the ground. Draw a line towards yourself. You are on this line somewhere. Now go around to the top side of the map, and in like manner pivot your ruler on the map location of the farmhouse at C and point it at the farmhouse on the ground. Draw a line towards yourself. Your position is also on this line somewhere.

Q. At the intersection of the two lines is your position. This process is technically called "resection."

Q. You are traversing (walking) along the road 395-428, you see a point on the high ground to the south that you want to locate on your map without going over there. How would you do it?

A. At 395 orient your map. Pivot your ruler at 395 and sight it on the distant point. Draw a line. The point must be on this line somewhere. When you get to 428 repeat the process, that is, orient your map, pivot your ruler on 428 and sight on the distant point. Draw a line. The point must also be on this line. Where the two lines join is the location of the distant point on the map. This is what is technically known as "intersection."

CONVENTIONAL SIGNS

Q. How are the topographical features of the country included in a map shown?

A. By means of conventional signs that all persons essaying to use the map should be familiar with.

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Q. What is the characteristic of these conventional signs?

A. They are drawn as nearly as practicable to resemble the features on the ground that they represent.

(NOTE: The conventional signs are the ABC's of map reading. You must be absolutely familiar with them if you would read a map. One of the best methods of learning them is to practice making them at odd moments until you are familiar with all of them.)

The following illustrations (pp. 338-339) show the system of conventional signs employed in making the Gettysburg war game maps and their 3 inches to 1 mile reproductions. Study and practice them until you learn them thoroughly.

Q. Locate an improved road.

A. The 395–428 road.

Q. Locate an unimproved road.

A. The road leading to the southwest from 415.

Q. Locate a single railroad.

A. That paralleling the 443-415-428 road.

Q. Locate a barbed wire fence.

A. Fence paralleling railroad and to east of it.

Q. Locate a smooth wire fence.

A. The fence along almost any road on the map.

Q. Locate a stream under 15 feet wide.

A. That running east and west through the north central part of the map.

Q. Locate a stream over 15 feet wide.

A. In the southeast corner of the map.

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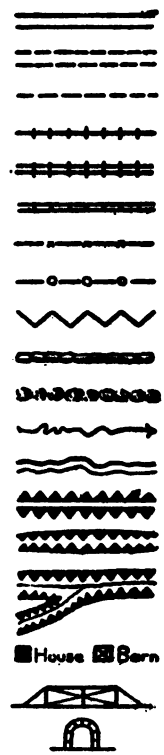
Improved Roads
Unimproved Roads
Trails
Railroads, Single Track
" Double Track
" Urban or Suburban
Fences, Barbed Wire
" Smooth "
" Worm
" Stone
" Hedge
Streams under 15' wide
" over " "
Embankment
Cutting
Arroyo or Ditch
Buildings
Bridges
Stone Culverts



Map in Colors.

Roads — Yellow
Water — Blue

Rectangles finished in 12" to 1 mile and 3" to 1 mile Scales. — Red
Rectangles finished in 3" to 1 mile

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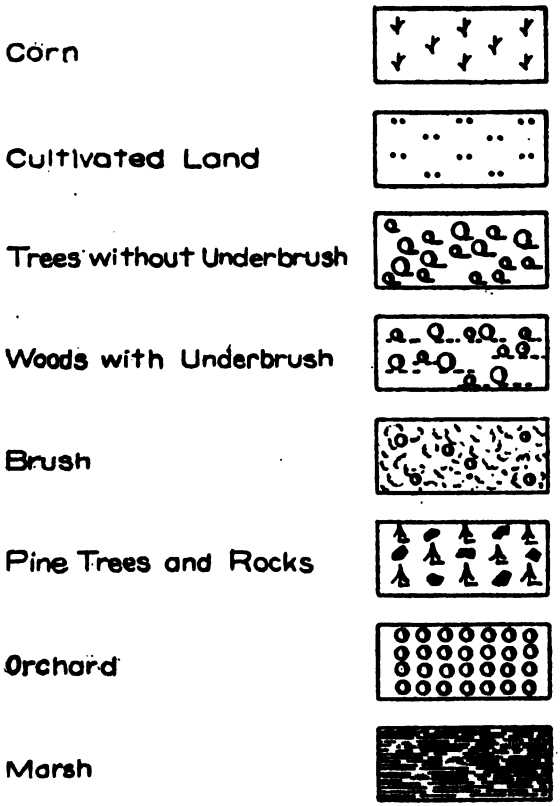

Q. Locate embankments and cuts.
A. See those along the railroad.
Q. Locate a bridge.
A. That at C on the railroad.

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Q. Locate houses and barns.
A. The Clagett farm south of 415.
Q. Locate corn land.
A. The big field northwest of the Clagett farmhouses.
Q. Locate cultivated land.
A. North and south of hill 462.
Q. Locate forest land.
A. Along the west slope of the valley running south from 383.
Q. Locate an orchard.
A. East of road fork 428.

CONTOURS

Q. What are contours?
A. They are lines of equal elevation. Lines cut from the surface of the earth by imaginary horizontal planes at an equal vertical distance from each other.
Q. What do contours show?
A. 1. The relative elevation of all points on the map.
2. The slope of the ground between any two points on the map.
3. The shape and form of the ground included in the area covered by the map.
Q. What are the principal characteristics of contours?
1. All contours either join or both ends extend to the edge of the map. When they join they either represent a hill top or a depression—a hill when the smallest closed contour is higher than the next one to it and a depression when it is lower.
2. Where the contours are equally spaced the slope

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is uniform. Where they are close together the ground is steep and where they are wide apart the slope is gradual.

3. A watershed is the high ground between two water courses. The water flows away from it on both sides and is indicated by the higher contours bulging out towards the lower ones.
4. A water course is the low ground between two watersheds. The drainage from both sides of it joins in one stream and is indicated by the contours bending sharply towards the higher ones.
5. A saddle or col is the space between the summits of two adjacent hills. It is indicated by two contours of greater elevation on two sides of it and two of lesser elevation on the other two sides.
6. A spur is an under feature that projects out from one of the main topographical features.

Q. You see at the bottom of the map a statement "Scale of Slopes" and underneath it a line divided up into parts and each part marked 1°, 2°, 3°, etc. What do you understand this means?

A. This is what is technically called a scale of "Horizontal Equivalents." It is used in map making to locate contour points on the map and is used in map reading to determine the slope of the ground at any point. We know that the ground will rise one foot on a one degree slope in 57.3 feet, and that it will rise 5 feet in five times 57.3 or 286.5 feet. We simply measure

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off 286.5 feet or 95.5 yards and that is the H. E. for 1 degree. Test this by measuring off the scale of slope for 1 degree and apply it to the graphical scale on the map and you will find that it measures 95.5 yards. Now to find the H. E. for the other degrees we simply divide the 95.5 by the numbers 2, 3, 4, etc., and lay off the quotient on the scale of slopes.

Q. Just below the scale of slopes we have the statement "Contour interval 5 feet." What do you understand by that?

A. It means that the vertical distance between contours on the map is 5 feet. That if the contours were marked on the ground one would be 5 feet vertically above the other.

Q. You also see the statement "Datum mean sea level." What does this mean?

A. That all the points on the map are so many feet above the level of the sea. It means that hill 462 is 462 feet above the mean level of the Atlantic Ocean.

Q. Locate a watershed on the map.

A. The ridge running north and south near the eastern edge of the map. The farmhouses at A are on the top of the watershed. Trace out the 445 foot contour on this watershed and see how it runs.

Q. Locate a water course.

A. The stream running across the map from south to north through the east central part of the map.

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Trace it out and see the watersheds that it lies between.

Q. Where is the steepest ground on the map?

A. On the wooded slopes of the water-shed to the east of farmhouses at A.

Q. Where is the most generally gently sloping ground on the map?

A. In the cultivated fields in the northwest corner of the map.

Q. Trace out the 440 foot contour and see how it runs on the map.

A. We note that the 440 contour comes on the map at the southeast corner, runs north to the end of the watershed then doubles back along the west side of the watershed, winds its way to the north of hill 462 and then towards the northwest where it leaves the map. It comes on the map again at the western edge north of hill 443—comes by Clagett farm, runs by road fork 443, thence south and leaves the map at the south edge just west of the railroad. Again small portions of it come on and leave the map at the north edge.

Q. Can you see road fork 415 from road fork 443?

A. No. The high ground southeast of the Clagett farmhouses intercepts the line of sight.

Q. Can you see road fork 383 from hill 462?

A. Yes. There is no higher ground lying between the two points.

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Q. Can you see the Clagett farmhouses from the farmhouses at A?

A. Yes.

Q. When there is doubt regarding the visibility of one point from another how can you determine the matter definitely?

A. By making a profile along the line of sight. This is made by plotting to scale on a piece of profile or cross-section paper (*a*) the point from which the observation is made, (*b*) the point to be observed and (*c*) any point that may intercept the line of sight.

Draw a line from (*a*) to (*b*) the plotted points. If it touches (*c*) the points are not intervisible. If it does not touch (*c*) they are visible one from the other.

(NOTE: Plate II shows the method of constructing a profile along the line (*a*)–(*b*) on the map with point (*c*) intercepting. The point (*b*) is not visible from (*a*). Get some cross-section paper at a stationery store and plot several profile lines as given on the map (*d*) to (*e*) and (*f*) to (*g*). Note that where the contours are close together on the map the line on the profile is very steep, and that where the contours are far apart on the map the profile line is not so steep. By a careful study of profile lines you can gain much knowledge of contours and what they represent.)

Q. Where would you post a sentinel on hill 462 to get the most extended view to the north?

A. At the north point of the hill just west of (*c*).

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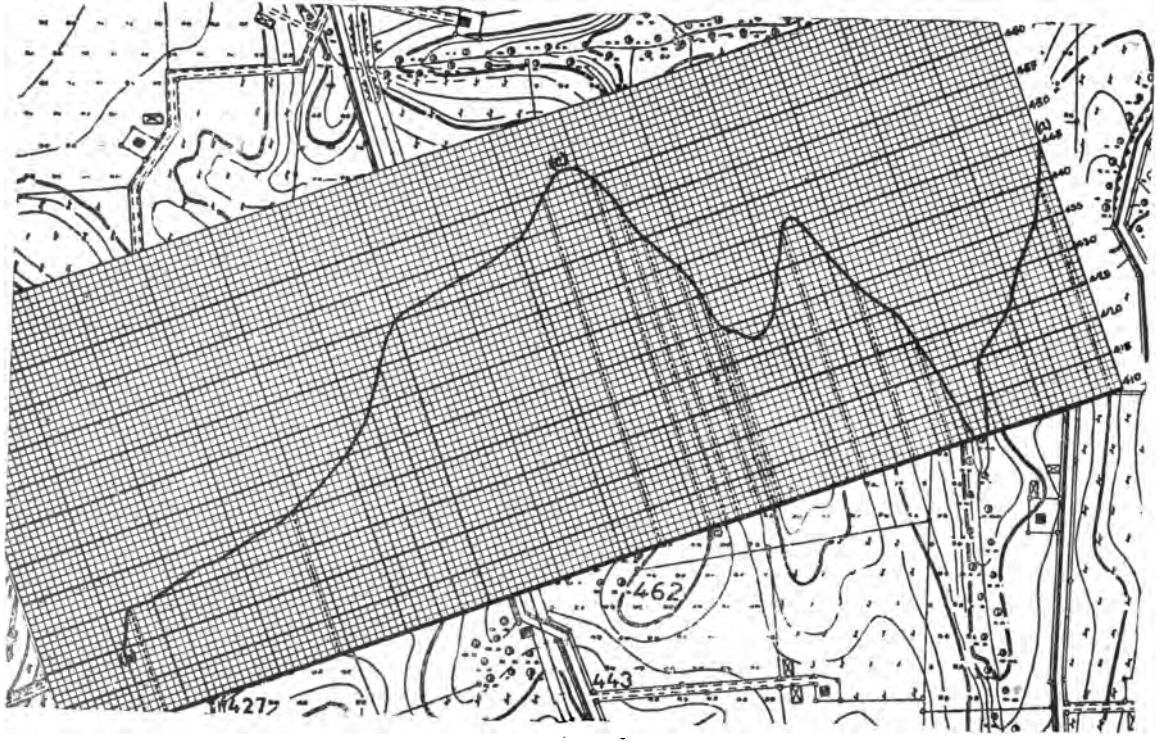

PLATE II

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Q. What is the slope of the ground between (*x*) and (*y*)?

A. One degree. Apply the scale of slopes between adjacent contours and you can determine the slope at any point on the map. The shape of the contours will give you the confirmation of the ground at any point.

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Scales.—When a draughtsman makes a drawing he generally makes each line on it of a length proportional to the length of the same line if it were drawn on the object itself.

For example, let us say, he is making a drawing of a desk that is 6 feet long and 2½ feet high. He decided that he wants 1 inch on the drawing to represent 1 foot on the desk. The drawing will be 6 inches long and 2½ inches high.

In other words, he is making his drawing to "*scale*," 1 inch to 1 foot. Any line on the drawing 1 inch long, measured in any direction, will represent the corresponding 1 foot on the desk.

This is what we mean by a scale. It is the ratio between the drawing and the thing represented by the drawing.

This is exactly what the sketcher does with respect to the making of his sketch. He makes a certain distance on his sketch represent a corresponding distance on the ground. This is the scale of his sketch.

Say it is 3 inches to 1 mile. Any 3 inches on the sketch will represent a corresponding 1 mile on the ground. Any 1 inch on the sketch will represent one-third of a mile on the ground.

In practice, the scale of a sketch may be represented by one of three methods.

1. It may be expressed in a simple statement written on the sketch giving the relation between the map and ground distance. For example: 6 inches equal 1 mile.

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2. This relation between map and ground distance may be expressed by what is technically known as a Representative Fraction, contrasted in practice to R. F. It will be explained to you in more detail later.

This method of scale designation is seldom used in sketching. It is useful in the solution of scale problems and in determining the scale of a map made in a foreign unit of measure, with which we may not be entirely familiar.

3. By a graphic scale. This is a line drawn on the sketch and divided into equal parts. Each part is marked, not with its real length, but with the ground distance that is represents. In our service this graphic scale is marked in even hundreds of yards, because that is the distance on the ground with which we are mos familiar.

There are two kinds of graphic scales, Reading and Working. The reading scale is the one we usually see on finished maps and sketches. It is the scale we use in map reading, because it is made in a unit of measure with which we are all familiar—yards.

The working scale is the scale that was employed in measuring the distances on the ground and plotting these distances on the sketch when it was in process of making. The unit of measure may be paces, strides, revolutions of a wheel, length of rope, or units of time.

For example: The sketcher takes a 32-inch pace in determining the distances on the ground. He has also to use a scale of 32-inch paces in drawing his sketch.

Again, the sketcher may determine his distances by

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riding over the course in a buckboard. In this case he wants a scale of revolutions of a wheel. This he obtains by measuring the diameter of the wheel in inches and multiplying it by 3.1416. This gives him the distance that the wheel passes over in making one revolution and forms the basis of his scale. In this instance it must be noted that the revolutions of the front wheel must be counted, because the brake is on the rear wheel, which may be slowed up from time to time and not give the correct distances.

I once knew of a young officer in the service who was engaged in making a sketch of a large area. He traveled over the roads in a buckboard counting the revolutions of the buckboard wheel. When he started plotting his sketch he found it all distorted. His courses would not close within reasonable limits. He was almost distracted when he finally realized that he had been counting the revolutions of a rear wheel which were affected by the brake being thrown on from time to time. All of his work had to be done over.

Length of Pace.—In order to measure distances on the ground by pacing it is necessary for you to know the exact distance that you cover in taking one pace.

This is determined by pacing over a known distance several times, counting the number of paces you take, reducing the same to inches, and then taking the average of all the tests.

The following method will be used. Go to the target range.

1. Pace from the 500-yard firing point to the tar-

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gets. Count the number of paces you take in going over this distance, which is 18,000 inches. Say you take 562 paces. Divide the 18,000 by 562, which gives you 32 inches, the length of your pace. This is not sufficient.

2. Now pace from the targets to the 600-yard firing point. This distance is 21,600 inches. Say you take 643 paces in covering the distance. Divide the 21,600 by 643, which gives you 33.6 inches, the length of your pace.

3. Pace from the 600-yard firing point to the 200-yard firing point. This distance is 14,400 inches. Say you take 471 paces in covering this distance. Divide the 14,400 by 471, which gives you 30.6 inches, the length of your pace.

4. Finally, pace from the 200-yard firing point to the 1,000-yard firing point. This distance is 28,800 inches. Say you take 901 paces in covering the distance. Divide the 28,800 by 901, which gives you 31.9 inches, the length of your pace.

Now add up the length of your pace determined in each instance and take the average of all of them. This will give you a sufficiently accurate pace length for all practical purposes.

1. 500 yards—18,000 inches—562 paces = 32.0
2. 600 yards—21,600 inches—643 paces = 33.6
3. 400 yards—14,400 inches—471 paces = 30.6
4. 800 yards—28,800 inches—901 paces = 31.9

Total.....4)128.1

32.0

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Thirty-two inches is the length of your pace. This is the unit of measure that you will use in making sketches. You will find it sufficiently accurate for all practical purposes.

I will show you presently how to construct a scale of 32-inch paces.

Some men find it easier to count the number of strides taken in passing over a given distance. In that case you would simply double the length of yourpace and call it a stride. In this case it would be 64 inches.

(NOTE: In case there is no target range handy, onver which the men may walk to determine the length of their pace, it will be necessary to have a number of courses accurately measured off so they will be easily accessible. For example, the distance from a point in front of the barracks to the guard house may be measured and plainly marked by white posts set at every 100 yards along the route. Other distances should be measured and marked. You will find that your men will determine the length of their pace without further effort on your part. All you have to do is to provide the facilities for doing it.)

In order that we may have a uniform system of sketching in the service, the War Department, in the Field Service Regulations, has prescribed that all road sketches shall be made on a scale of 3 inches to 1 mile, and all position sketches on a scale of 6 inches to 1 mile.

NOTE: The instructor will have provided a blackboard on which the formula for the solution of scale problems will be written out, as follows:

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m times p, divided by n equals x.

m = the number of units of measure to be represented by the scale line.

p = the number of inches in the unit of measure.

n = the denominator of the Representative Fraction.

x = the number of inches in the scale line to represent m units of measure.

He will solve one or more of the scale problems along the lines given below, calling upon members of the class to assist. Each solution will be accompanied by a blackboard demonstration. It will be found that the men will easily master the system and thereafter scales will be easy for them. Try it out.

Solution of Scale Problems.—The solution of scale problems has always been the bugbear of students of military topography. This should not be so. It is not necessary in practice to solve abstruse problems in scales.

All a man needs is to understand what a scale is and how it is applied practically in map making and map reading.

You can get the ordinary scale that is necessary to use from any one of a number of the standard text-books on Military Topography and Sketching.

You should, however, understand how these practical scales are constructed—how they are arrived at.

I have found in practice that the method I am going to show you has met every requirement of the student, and when it is once thoroughly learned it "sticks."

We use a simple formula in which the elements are

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easily learned and remembered. In most cases they are constant.

The formula is this:

m times p, divided by n, equals x.

Written:

$\frac{mp}{n}=x$, in which:

m is the number of units of measure (yards, paces, feet, meters, revolutions of a wheel, strides of a horse, or in time scales a minute of time) to be represented by the scale line.

p is the number of inches in the unit of measure. For example: In a scale of yards p would be 36; in a scale of meters p would be 39.37, because there are 39.37 inches in a meter; in a scale of paces p would be the number of inches in the pace taken by the sketcher. In time scales p would be the number of inches passed over by the sketcher in one minute of time.

n is the denominator of the Representative Fraction of the scale. By Representative Fraction (R. F., it is written) we mean one that is reduced to unity, in which the numerator represents the map distance in any unit of measure and the denominator represents the number of the same units of measure on the ground. For example: we have a R. F. $\frac{1}{10560}$. This means that 1 inch on the map represents 10,560 inches on the ground; one foot on the map represents 10,560 feet on the ground: one rope length of 8 feet on the map represents 10,560 of like rope lengths on the ground. Six

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inches on the map represents six times 10,560 inches on the ground, or 63,360 inches. Now, knowing that there are 63,360 inches in a mile we know that the R. F. $\frac{1}{10560}$ is the scale of 6 inches to 1 mile.

Now let's take the thing around the other way.

$$\frac{\text{Map Distance}}{\text{Ground Distance}} = \frac{\text{6 inches}}{\text{One mile}} = \frac{\text{6 inches}}{\text{63360 in.}} = \frac{\text{1 inch}}{\text{10560}} = \frac{1}{10560} \text{ R. F.}$$

So we know the R. F. $\frac{1}{10560}$ is 6 inches to 1 mile.

x = the number of inches in the scale line that will represent m units of measure.

Let us apply this formula to a scale problem:

Problem.—You have determined your pace to be 30 inches. Your stride is, therefore, 60 inches. Construct a scale of strides, 3 inches to 1 mile.

m = 1,000 strides. That is, the scale, when it is completed, will represent 1,000 strides.

p = 60, because there are 60 inches in your stride, the unit of measure.

n = 21,120, because 21,120 is the denominator of the R. F. 3 inches equals 1 mile.

We now have to solve the formula to arrive at the value of x.

1,000 times 60 = 60,000 divided by 21,120 = 2.84 inches.

Therefore, a line 2.84 inches long will represent 1,000 strides on a scale of 3 inches to 1 mile.

Construction.—Draw a line 2.84 inches long. Divide

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it into five equal parts. Each part will represent 200 strides. Divide the left-hand part into eight equal parts. Each part will represent 25 strides. You have a scale of strides of 60 inches at 3 inches to 1 mile, complete and ready for use.

The method of dividing the line into equal parts is shown in Fig. 1.

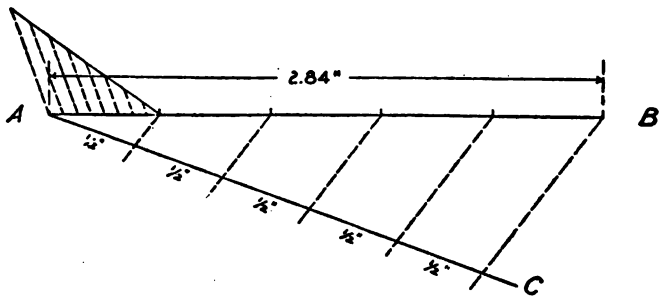

FIG. 1.

The line *A*—*B* is 2.84 inches long. We want to divide it into five equal parts. Draw the line *A*—*C* at any convenient angle to *A*—*B*, and of a suitable length. On the line *A*—*C* lay off five equal spaces from *A*. Now, draw a line from the fifth point on *A*—*C* to *B*. Draw lines parallel to this line through the other four points on *A*—*C* and extend them upward until they cut the line *A*—*B*. This process also divides *A*—*B* into five equal parts. Each of these parts will represent 200 strides.

In a similar manner divide the left-hand division into eight equal parts as shown in the illustration, each representing 25 strides.

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Now, erase all the lines except the finished line *A*—*B* and you have the complete working scale as shown in Fig. 2.

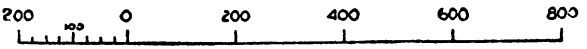

FIG. 2.

Problem.—Construct a scale of yards, 6 inches to 1 mile.

m = 2,000 yards, that is, the scale when it is completed will represent 2,000 yards.

p = 36, because there are 36 inches in a yard, the unit of measure.

n = 10,560, because 10,560 in the denominator of the R. F. 6 inches equals 1 mile.

We have now to solve the formula to arrive at the value of x.

2,000 times 36 = 72,000 divided by 10,560 = 6.81.

Therefore, a line 6.81 inches long will represent 2,000 yards on a scale of 6 inches to one mile.

Construction.—Draw a line 6.81 inches long. Divide it into five equal parts. Each part will represent 400 yards. Divide the left-hand division into four equal parts, each representing 100 yards. You have a scale of yards at 6 inches to 1 mile, complete and ready to use.

Problem.—A man takes a step of 32 inches. Construct a scale 3 inches to 1 mile.

Formula: m times p divided by n equals x.

m = 2,000 steps.

p = 32 inches.

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n = 21,120, the denominator of the R. F. 3 inches to 1 mile.

x = 2,000 times 32 divided by 21,120 = 3.01 inches.

Therefore, a line 3.01 inches long will represent 2,000 steps on a scale of 3 inches to 1 mile.

Construction.—Draw a line 3.01 inches long. Divide it into five equal parts. One part will represent 400 steps. Divide the left-hand division into four equal parts. One part will represent 100 steps. You have your scale ready for use.

Problem.—A wagon wheel is 40 inches in diameter. Construct a scale of wheel revolutions for a map being made at a scale of R. F. $\frac{1}{20,000}$

Formula: m times p divided by $n = x$.

m = 1,000 revolutions of the wheel.

p = 40 times 3.1416 = 125.6 inches in the unit of measure.

n = 20,000, the denominator of the R. F.

x = 1,000 times 125.6 divided by 20,000 = 6.28 inches.

Therefore a line 6.28 inches long will represent 1,000 wheel revolutions on a scale of R. F. 1:20,000.

Construction.—Draw a line 6.28 inches long. Divide it into five equal parts. Each part will represent 200 wheel revolutions. Divide the left-hand division into four equal parts. Each part will represent 50 wheel revolutions. You have your scale ready for use.

Problem.—Construct a scale of meters. R. F. 1 : 10,000.

Formula: m times p divided by n equals x.

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m = 2,000 meters. Always make m = 1,000 or 2,000 in linear scales and 10 in time scales. If it is too great a value you will see that it is necessary to reduce it after the problem is solved.

p = 39.37 inches. The number of inches in a meter.

= 10,000 the denominator of the R. F.

x = 2,000 times 39.37, divided by 10,000 = 7.87 inches, the length of the scale line to represent 2,000 meters

Construction.—Draw a line 7.87 inches long. Divide it into five equal parts. Each part will represent 400 meters. Divide the left-hand division into four equal parts. Each part will represent 100 meters. You have your scale ready for use.

Now let us take a time-scale problem.

Problem.—A horse trots a mile in six minutes. Construct a time scale of minutes at 3 inches to 1 mile.

Formula: m times p divided by $n = x$.

m = 10 minutes.

p = 10,560 inches. That is, the horse will pass over 10,560 inches in one minute of time.

n = 21,120 the denominator of the R. F. 3 inches = 1 mile.

x = 10 times 10,560 divided by 21,120 = 5 inches.

Construction.—Draw a line 5 inches long. Divide it into five equal parts. Each part will represent two minutes of time. Divide the left-hand division into four equal parts. Each part will represent 30 seconds of time. Your scale is constructed and ready to use.

Working Scales.—For your convenience there is included herein a drawing giving scales of paces from

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30 to 36 inches at 3 inches to the mile and 6 inches to the mile, all drawn accurately and ready for use.

After determining the length of your pace, if it is a scale of strides you want, all you have to do is to double the length of the pace.

To get a scale from the illustration, simply lay a piece of paper or a card along the line indicated and dot off the scale. Mark the divisions with the numbers at the bottom. If it is a 3-inch scale use the upper row of figures. If it is a 6-inch scale use the lower row.

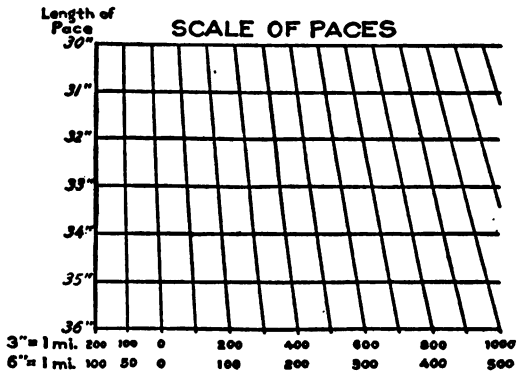

FIG. 3

Conventional Signs.—In sketching we must have some means for illustrating the topographical features of the country so that others may be able to interpret the meaning of the sketch. This is provided for by a system of conventional signs with which we are all familiar. The system that was employed in making the Fort Leavenworth war game map was evolved after much thought and consideration. It is designed

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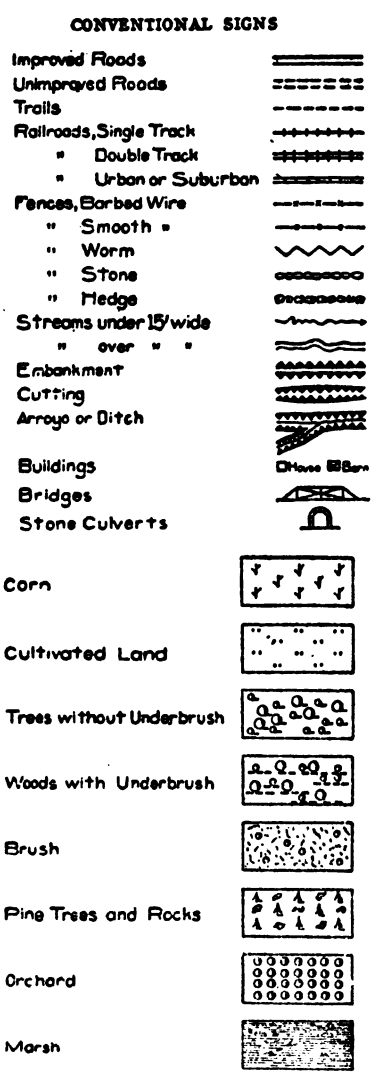

FIG. 4.[1]

to show all topographical features in the most simple manner possible. (See Fig. 4.)

In hasty sketching, the ground covered with woods or growing crops may be illustrated by simply outlining the area so covered and writing the name of the covering vegetation within the boundaries of the outline. (See Fig. 5.) This saves a great deal of time and produces a sketch that is neater and more easily read than when you try to crowd in all these details.

Like all the elements of sketching, one cannot learn the system of conventional signs by merely looking at them in a book. You must get down and study them out and practice making them until you are proficient.

(NOTE.—The instruc-

[1]System of conventional signs used in the making of the Fort Leavenworth war game map.

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tor should have drawn on the blackboard the conventional signs. Have the members of the class make several copies of each.)

I want to warn you not to put off learning to make these conventional signs. When you go out to sketch

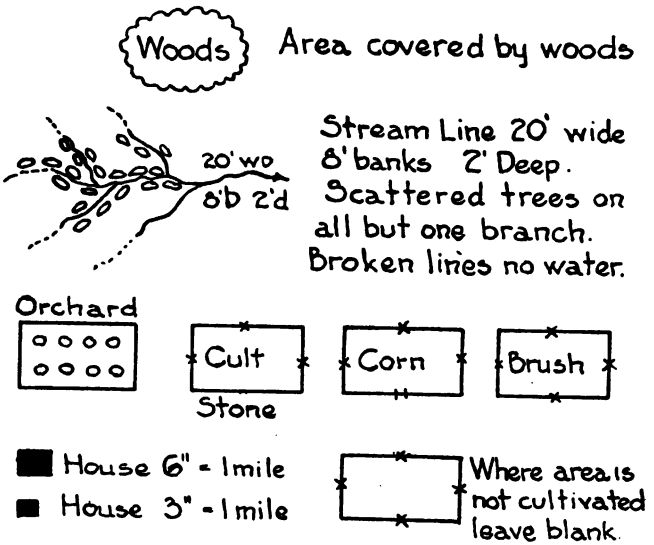

Fig. 5—System of conventional signs used in hasty sketching.

you must know them as you know your A, B, C's. The way to learn is to practice making them whenever you have a pencil and piece of paper handy. It takes practice and practice, and then more practice.

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MILITARY SKETCHING

CONTOURING WITH THE SCALE OF HORIZONTAL EQUIVALENTS

The beginner in sketching always has trouble with contours. They are his bugbear. He learns from a book that one contour does not cross another, that a contour either closes on itself or both ends of it go off the sketch and that a contour is a line of equal elevation. All of this does not help him very much. On the other hand, the mere memorizing of rules only multiplies the confusion. Added to all of this is the fact that many officers who essay to instruct in the subject unconsciously clothe it in mystery and make it more difficult than it really is.

A contour is a line, every point of which has the same elevation, that is, if you walk along a contour line you neither go up hill or down hill—you always walk on a level. Let me try to illustrate this to you. Let us say that we have built a big dam across a creek so as to make a reservoir. From the bottom of the creek at the foot of the dam to the top of the dam is exactly 20 feet. Now let us fill our reservoir with water right up to the top of the dam. The surface of the water is level. It spreads out over the area backing up into the gullies and curving around the spurs lying between the gullies. Thus a shore line is formed. This is a contour line, every point of which is exactly 20 feet vertically above the bottom of our dam.

If you start at the left end of the dam, at the point where it joins the ground at the top, and follow the

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shore line in the direction of the hands of a clock, you will find that you must turn to the left at every entering valley, walk up the valley until you arrive at the place where the water-line crosses the valley, then turn to the right and walk down the valley to get around the point of the spur which lies between it and the next valley.

Continuing your walk around to the point where the right end of the dam joins the ground, you have traversed the entire shore line—you have walked along a contour line. You have neither gone up hill nor down hill. You have seen that the valley contours go in pairs, that is, there is one of the same elevation on each side of the valley. They form a sort of V which opens out in the direction of the water flow, with the point of the V upstream. Where the shore line curves around the spur it forms a sort of a U, which opens out towards the higher ground up the spur.

We will now let the water out of the reservoir until its level reaches a point exactly 10 feet above the bottom of the dam. In other words, we let 10 feet of water out of the reservoir and lower the water level 10 feet. Another shore line is formed, every point of which is on the level, and every point exactly 10 feet vertically below the No. 1 shore line. This is where the term "vertical interval" or "contour interval" comes from. These two shore lines are contour lines having a vertical interval of 10 feet.

Examining these two contour lines more critically, we find:

1. That every point on each line has the same ele-

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vation above the point of reference, which is the bottom of the dam. Thus we find the practical application of the technical term "datum." The bottom of the dam is our "datum"—our point of reference.

2. That every contour closes on itself either within or beyond the limits of the sketch. In the latter case the ends run to the edge of the sketch. Witness our shore lines how they run around and close upon themselves at the dam.

3. That the distance between contours indicate the steepness of the ground at any point. Where the ground is steep the contours are close together, and where the slope is gradual they are further apart. Consider our two shore line with respect to this.

4. That contours show the shape of the ground. Consider how our shore lines meander along the surface of the ground, running up into the valleys and out again and then work around the point of the spurs.

5. That in crossing a valley the contours run up the valley on one side and, turning at the stream, run back on the other side. In crossing a ridge they run to the ridge line, then turn and run back on the other side of the ridge.

You have seen what may be shown by contours. The practical question of getting this information on paper is the next problem that confronts the sketcher.

We may go through the laborious process of making a complete survey of our contour lines and plot them on paper according to scale. This would result in an accurate map of the ground, but it would consume so much

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time and labor that it is entirely out of the question where maps and sketches have to be produced for military purposes in a limited length of time.

Lying between each two water courses there is a watershed or ridge; conversely, lying between each two watersheds there is a watercourse. If we get these watercourses and watersheds platted on our sketch, the lines representing them will form a framework of what we call "master lines," on which we are able to base the location of the contours.

The next proposition is to determine just where the contour line crosses these master lines. Having this, we are able to draw in the contours and shape them up according to the lay of the ground.

It is manifestly impracticable in sketching an area for us to locate with instruments in the field the exact point where each contour crosses each of the master lines, nor is it necessary to do so. No sketch can show every form of the ground.

The problem then resolves itself down to the proposition of locating a sufficient number of points on the master lines to enable us to draw in the contours to show the shape and accidents of the ground within reasonably accurate limits. To do more than this will require more time than is ordinarily available in the field.

If we locate the critical points along our master lines and determine the elevation of them, we may by a process of interpolation locate the remaining contour points. These critical points are the points where

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streams join and where they head, the top and bottom or hill features, and the points of abrupt changes of slope on master lines.

Before we go further into the practical part of this subject I want to explain to you the use of the "scale of horizontal equivalents," in practice contracted to "H. E."

We know that on a one-degree slope the ground will rise one foot in 57.3 feet. For convenience, in rough sketching, we take this distance at 60 feet instead of 57.3 feet, which is near enough for all practical purposes and gives us round numbers to work with. Now if the ground rises one foot on a one-degree slope in 60 feet it will rise 10 feet on a one-degree slope in 600 feet. From this we deduce a table of H. E. for a 10-foot vertical interval and a 20-foot vertical interval:

Degree of slope	10 *feet V. I*	20 *feet V. I.*
1°	600 feet	1,200 feet
2°	300 feet	600 feet
3°	200 feet	400 feet
4°	150 feet	300 feet
5°	120 feet	240 feet
6°	100 feet	200 feet

Now, having a scale of feet drawn at 3 inches to 1 mile we are able to construct a graphical scale of horizontal equivalents. We simply lay off 600 feet on a line and mark it 1°; 300 feet, 2°; 200 feet, 3°; 150 feet, 4°; 120 feet, 5°; 100 feet, 6°. We then have a scale of H. E. at 10-foot V. I. ready for use. This scale is generally placed on a card or pasted or printed on the edge of the

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triangular ruler that is used as a scale and alidade in sketching.

I want you to work out a few problems to illustrate to you the practical application of the scale of Horizontal Equivalents.

1. Draw a line from A to B, 2½ inches long. The elevation of A is 500 feet; the slope is plus 1°; the vertical interval is 10 feet. Dot off the 510, 520, 530, and 540

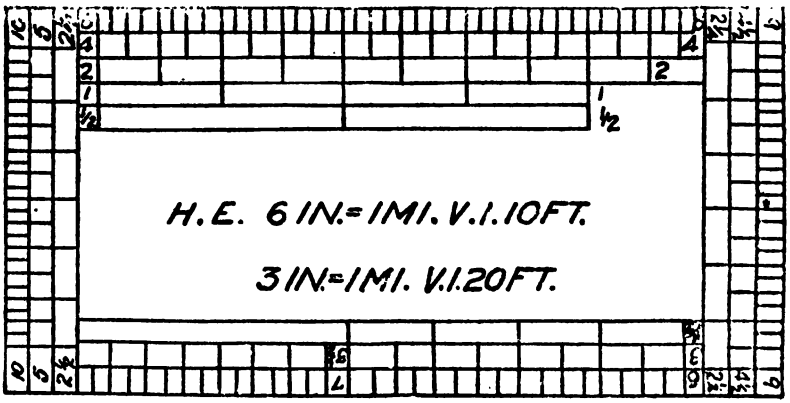

Fig. 1.

contour points. What is the elevation of B?

Solution: Draw your line 2½ inches long. Mark the left end A—500 and the right end B. Take your scale of H. E. for 1°, place the zero end at the A end of the line, and reading to the right dot of the required contour points, you will see that the B end of the line has an elevation of 540 feet.

2. Draw a line from A to D, 6¼ inches long. From A at the left end of the line lay off B, 2 inches; C, 3¾ inches. The elevation of A is 500 feet. The slope from

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A to B is plus 1½; from 4 to C is minus 2°; and from C to D is plus 1°. The vertical interval is 10 feet. Dot off all contour points.

Solution: Draw the line as stated in the problem. Beginning at A (the left end of the line), mark the location of the points B, C, and D. Beginning at A, apply your scale of H. E. for 1½°, slope and dot off the contour points to B. You find that the 510, 520, 530 and 540 points fall between the two points. You further find that there is a space remaining that is only one-half of the length of the contour interval on your scale of H. E. This half-interval, added to the 540 elevation, makes point B have an elevation of 545 feet. Now take your scale of H. E. for a 2° slope and apply it to the line B—C. Remembering that this is a minus slope, the first thing you must do is to get down to the 540 contour. The elevation of B is 545 feet, so you must come down to the nearest even contour, which is 540. In order to do this we dot off one half of the 2° interval and locate the 540 contour point. Then slide the scale of H. E. along the line to the right until the zero of the 2° slope is on the 540 point and dot off the 530, 520, 510, 500 and 490 points. The latter will fall at C. Again take your scale of H. E. and find the 1° slope. Place the zero at C and dot off the 500, 510, 520 and 530 contour points. The latter will fall at D.

This is a master line, the critical points being A, B, C, and D. Examining the location of our contour points, we find that where the slope is steeper the contour points are closer together than where it is more gradual.

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Now let us reverse this process and locate our contour points from the fact that we know the elevation of certain points. Draw a line A—B, 3 inches long. The elevation of A is 500 feet; that of B is 540 feet. The contour interval is 10 feet. Locate the 510, 520 and 530 contour points.

Solution: Draw your line and mark it as indicated. Then divide it into four points by the eye and locate the contour point equally distant apart, or you can lay a piece of paper on the line to get the total distance from A to B, fold it over twice, and the folds will indicate where the contour points are to be located.

We are now ready to locate the contour points on a hill feature. Draw a line 4 inches long. At its middle point (2 inches from the left end) draw another line 4 inches long at approximately right angles to it, 2 inches extending on each side of the first line. Mark the intersection of the two lines A—500; mark the left end of the first line B—430; mark the top of the vertical line C,—(minus)2°; mark the right end of the horizontal line D—(minus) 1½°; mark the bottom of the vertical line E—420.

Solution: From A to B there is a difference of elevation of 70 feet, so we know that between A and B the 490, 480, 470, 460, 450 and 440 contours must lie. Divide off the distance by eye into seven as nearly equal spaces as possible and dot off the contour points. From A to C the ground falls at a minus 2° slope. Apply the scale of H. E. for 2° with the zero end at A and dot off the contour points. You will find that the elevation of

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C is 440. In like manner dot off the contour points for a 2½° slope along the line A—D and you will find that the elevation of D is nearly 420 feet. The line A—E is treated by the same process that was used on the line

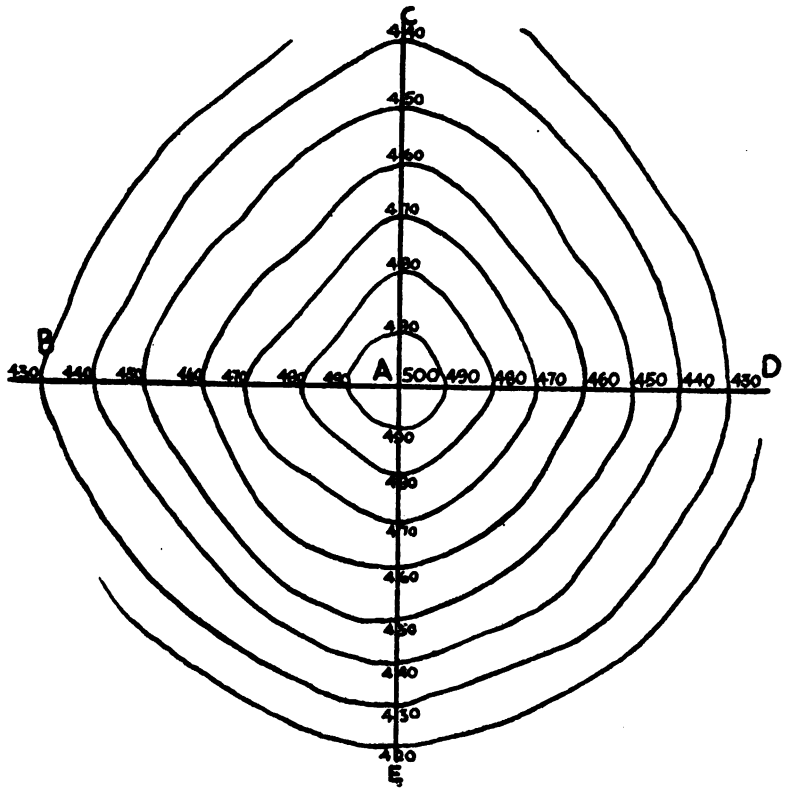

FIG. 2.

A—B and the 490, 480, 470, 460, 450, 440, and 430 contour points dotted off.

Having the location of the 490 contour point on all

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four lines, we are able to draw in the contour so that it will pass through the points. Likewise we are able to draw in the 480, 470, 460, etc., contours and they will will represent a hill feature, as shown in Fig. 2.

Determining the Relative Elevation of Points with the Scale of Horizontal Equivalents. You have seen how we are able to locate contour points by knowing the relative elevation of points. We determine the location of these points of reference on our sketch by the process of angular and distance measurement, either by reading the bearings with a compass and plotting them on the sketch or by the plane table method of orienting the sketch and using an alidade. In either case we determine the direction of one point from another. Our next step in locating the point on the direction line is to measure the distance either by pacing or otherwise measuring it directly, or when we have two points on the sketch located and plotted we can determine the location of a third by a process of intersection.

Now, having located the point, it is necessary to determine its elevation with reference to the assumed datum plane—how high above the bottom of the dam that I told you about a few minutes ago. This is done by measuring the angle of slope between the two points. Having determined this angle of slope we have but to apply the scale of H. E. for that angle to the line joining the point of known elevation and the distant point of unknown elevation, and by counting the number of contour intervals included in the line and multiplying this

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number by the vertical interval we determine the relative elevation of the distant point.

To illustrate: Let us say we are at the point, elevation 850 near the north center edge of the sketch (Fig. 2). We have located hill 892 at the south edge of the sketch. We do not know the elevation of the latter. With our

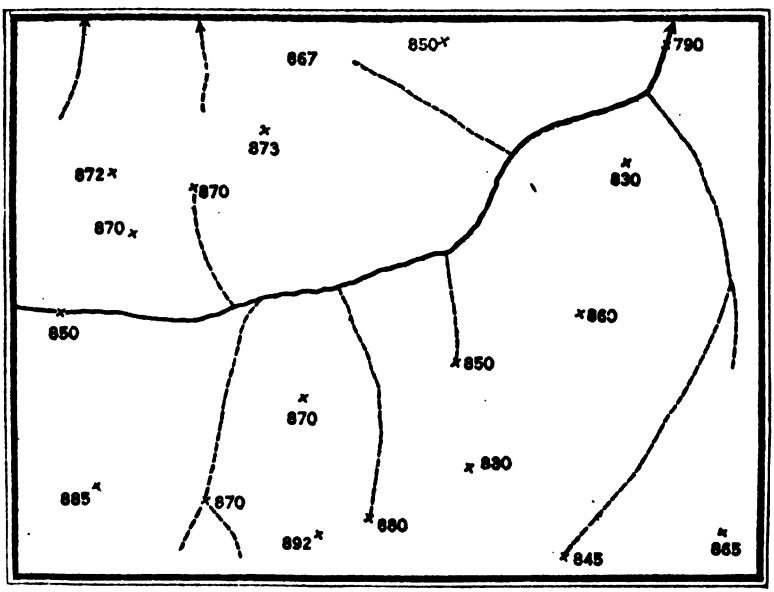

FIG. 3.

linometer or slope board we measure this angle of ope and find it to be about one degree plus. We apply r scale of H. E. for one degree to the line joining the o points and find that there are four contour intervals of a little over. The scale of the sketch being 6 inches mile and the vertical interval 10 feet, we at once uni

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determine the elevation of the distant point to be 892.

Knowing the elevation of all critical points within the limits of our sketch, we are able to proceed with the task of filling in the contours.

Fig. 2 is a skeleton sketch with a scale of 6 inches to 1 mile. The vertical interval is 10 feet. It shows the

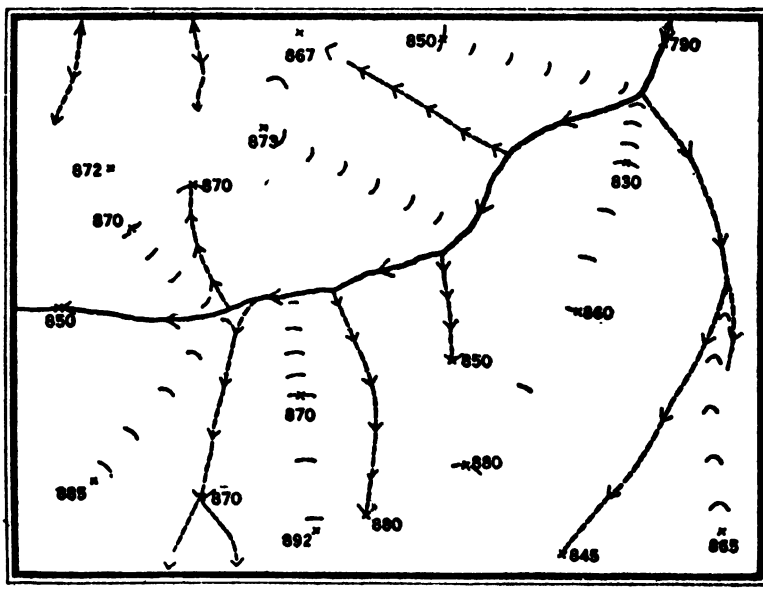

Fig. 4.

complete drainage system of the section included in the sketch, together with the location and elevation of a few of the master critical points. The main stream-line of the area is shown in the heavy black line running from the west central border of the sketch towards the north-east corner. The direction of flow is indicated by th

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arrow near the elevation 790, which is the lowest point on the sketch. The smaller tributary streams in the drainage system are indicated by dashed lines. The elevation of a number of master points are given. The problem is: Draw in the contours at a 10-foot vertical interval, with no data other than that given. To do this we proceed as follows:

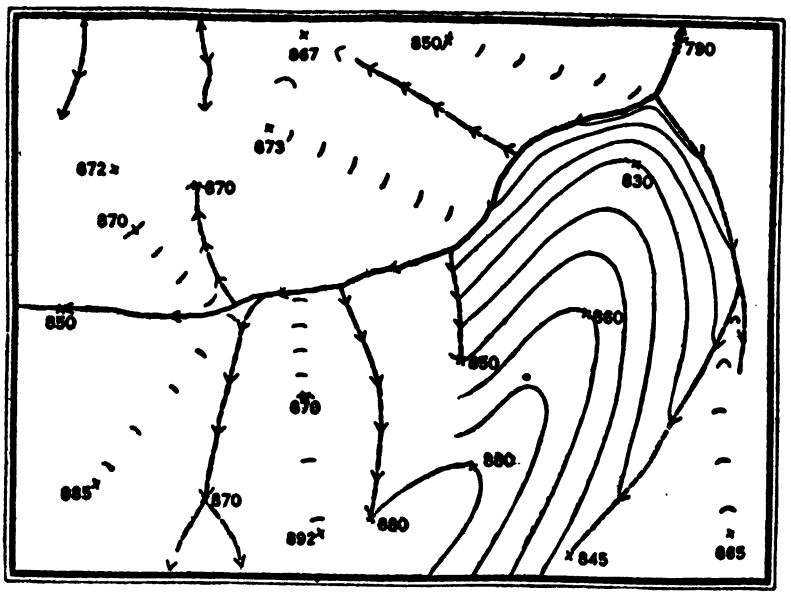

FIG. 5.

Beginning at the point 790, the lowest on the sketch, we examine the main stream-line and find that the only other elevation given on this line is 850.

We assume that the slope between 790 and 850 is uniform, possibly getting a little steeper near 850. We

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know then that the 800, 810, 820, 830 and 840 contours cross the stream between 790 and 850, so we divide up the distance equally into six parts and dot off the contour points as indicated in Fig. 3.

Going back now to the point 790, we work up the main stream to the point where the first tributary from

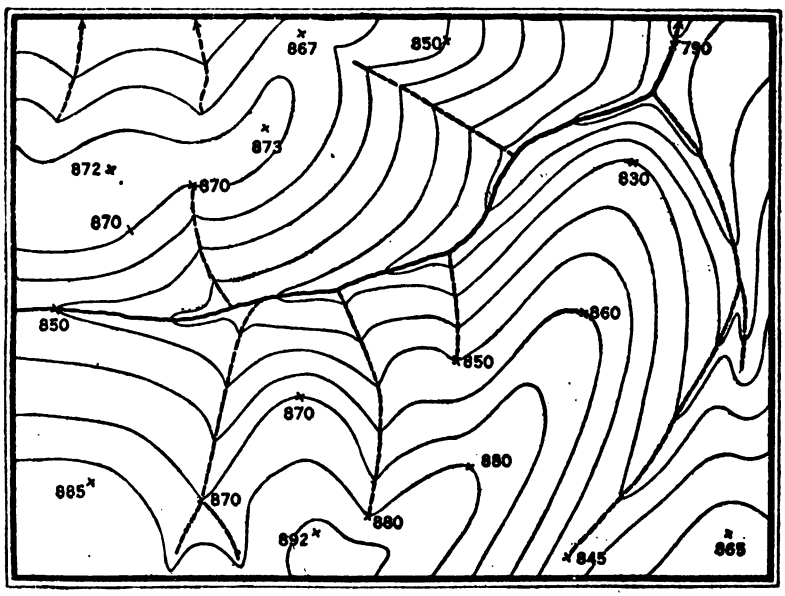

Fig. 6.

the south comes in. We note that this point is about one-half the contour interval from 790; we therefore call it 795. Working up along this stream we find a point 845 near the south border of the sketch. From this data we are able to dot off the points where the 800, 810, 820, 830 and 840 contours cross the stream.

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We have a hill at the southeast corner of the sketch, the elevation of which is 865. It will be necessary to locate the contour points between here and the place where the two tributary streams join to the north. This latter point has an elevation of 815. We know that the 820, 830, 840, 850 and 860 contours will come in here,

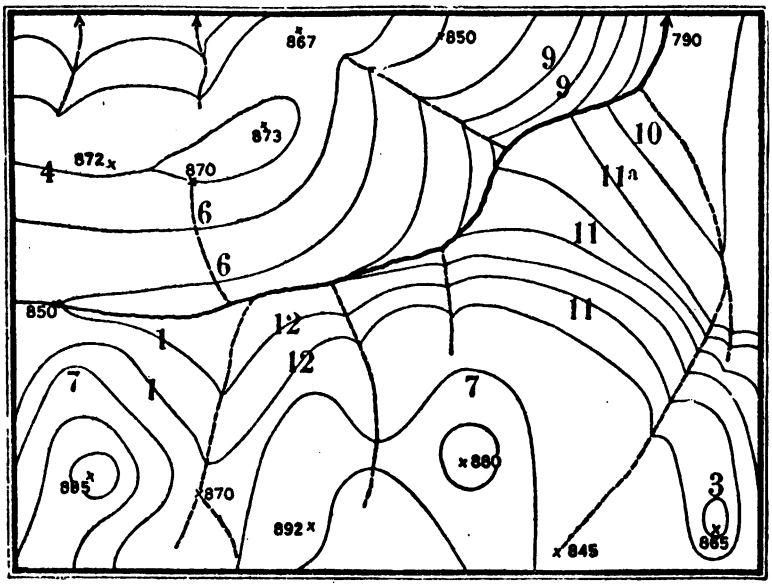

FIG. 7.

so we dot them off. Again we know that between the points 845 and 865 at the southeast corner of the sketch the contours 850 and 860 will lie. We dot them off.

Now, going back to our first stream junction, we dot off the contour points between there and the 850 point at the north edge of the sketch and to the 830 point

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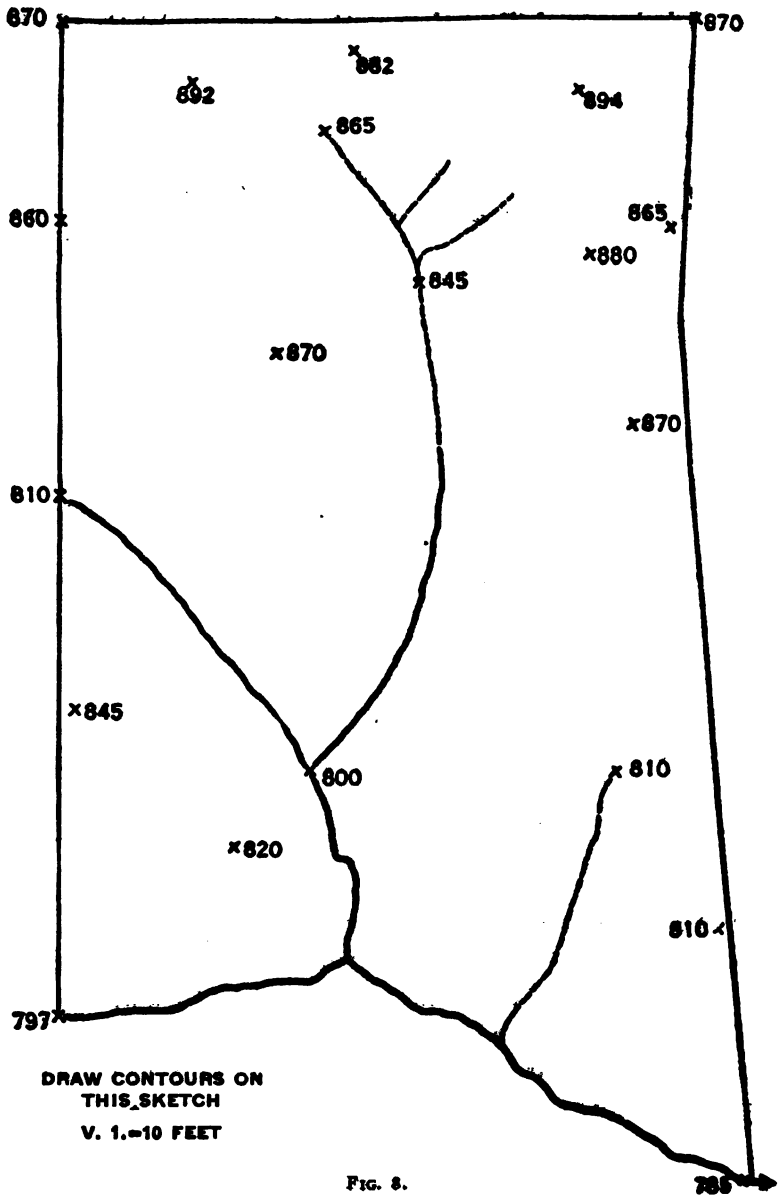

FIG. 8.

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just south of the junction. Then we go to the 830 point and interpolate up to the 860, dotting off the 840 and 850 contours and, continuing along the ridge line to 880, we dot off the 870 point.

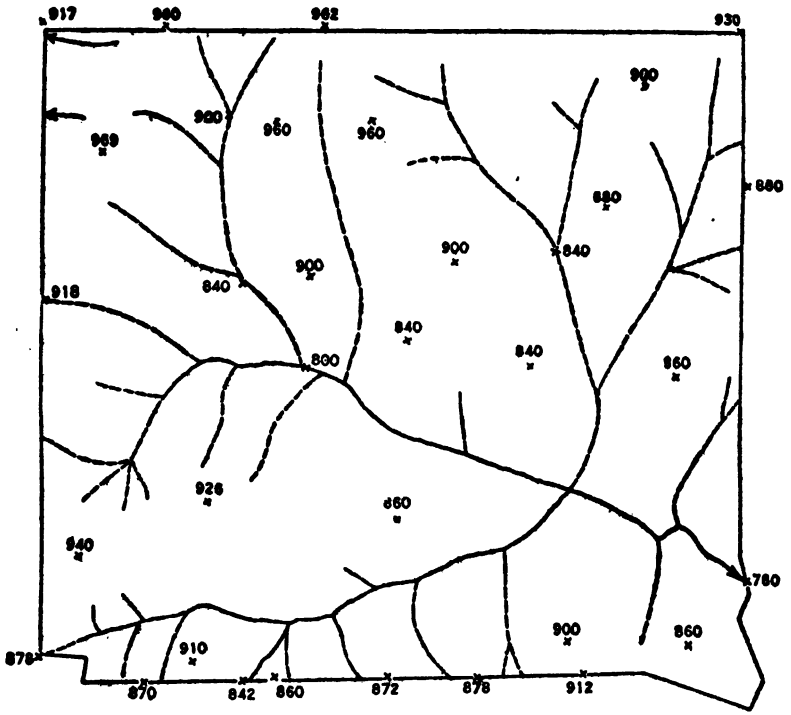

FIG. 9.

Starting at the point 880 we interpolate to 845 to the east and the 850 point directly north and find in each case that we dot off the 870, 860 and 850 contour points.

Proceeding to the next tributary stream running

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from the south we dot in the 820, 830, 840 and 850 contour points.

From all of this data we are able to draw in the hill feature as indicated in Fig. 4.

This process is continued until all the area included in the sketch has been filled in as indicated in Fig. 5.

Errors in contouring.—The characteristics of contours have been pointed out to you. Violation of these characteristics are shown in Fig. 6.

1. The main stream line is much steeper in its lower reaches than in the upper. This might possibly be so, but it is unusual. It should not be shown thus unless it is so indicated by unmistakable data in the skeleton.

2. The contours (6) should turn up the stream lines.

3. Contour (1) crosses the same stream twice by running around hill 865 and back again. This cannot be correct.

4. Contours (11) follow no system. Ground shaped by erosion of water will never be found thus.

5. Contours (11a) indicate that one may walk directly across country on a level line from one stream to another. The streams would not be here if this were possible. There must be a watershed between two streams.

6. Poor shaping of contours is usually due to illogical interpolation between critical points. Remember that the drainage and ridge lines are the master lines of your your sketch on which the contours are based. Interpolate along drainage lines first, working first along the main line and then proceeding to the tributaries. Then search out the ridge lines and interpolate along them.

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SYNOPSIS OF TALK

Description of contours; Characteristics of contours; Master lines; Critical points; Scale of Horizontal Equivalents; Problems in use of Scale of H. E.; Contouring with scale of H. E.; Contouring by interpolation.

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